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498

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 <213> B.fragilis

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 tctggcttcg aaacagaagc cgtttccgag ttcgataatg aagtctcgca aatggtcgag 180  
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<210> 5051  
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 <212> DNA  
 <213> B.fragilis

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 gttttagaac aatccgatgc gttgtatcct cagcgcggtg ctacttccga agaggaggca 180  
 aacatttgtc tggcactatt gatgggttac aatgcaacca tctataatca gggtgacaag 240  
 gaggagaaaa agcaagtgtt tctcaatcgt tgggtgggacg tgcttgacca aacttctggt 300  
 actttattga aatgccagtt ggtgacttat tggtatggtg gaggtgttga agaggaattg 360  
 ggcaaagagg ggccttcctt tattaataag gtggaaagaa taagaaactt tctgaagatt 420  
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 <213> B.fragilis

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 cagtttgtca tccggcagtt gaaatatcgt cgaaaacggg tggaggtccc tggtattaag 180  
 aatcttatct tcatccaagc taccaagcaa gatgcttgtg atatttctaa taaatacaat 240  
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 cagatgcagg acttcatatt tgtcatggat ttagatccga atggcgctcag tttcgataat 360  
 gaccatttat ctgtcggtag cagggttcag gtagttaaag gtgatttctg tgggtgtcgag 420  
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 <213> B.fragilis

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 agagaaccac tacgcatcac aaaaggcaaa ggaaagctaa tggaggcact taccgaaagc 180  
 tttatcaaaag tcggaatcaa cagcatggaa aacagaccca ttgaagaact acaggaaaca 240  
 ataaaaaat atctcacctt tgaatatcag cgcaaaggca ttgctacaga gcccaataaa 300  
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 agcgaataa 369

<210> 5054  
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 <212> DNA  
 <213> B. fragilis

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 gatgctagcg gtgaatcagt catcggagcg agtggtgtcg aagtcggtag caccaatggt 180  
 gtaattaccg atattagcgg caagtttaca ttaatggtag atcctaacgg aaagatcaaa 240  
 gtttcttatg ttgggtatca gcctcaggta ctcgatgtaa agggcaaaaa ttctttcaat 300  
 attaaattga aagaagactc tgaaatgttg gatgaagtag tagtcacagg atatggtggc 360  
 aaacagttgc gtaccaaagt gaccaattca attggcaaag taaaggaaga tgttctacaa 420  
 aaaggactct tttccaatcc ggcacaagct ttgtctgggg cggtagcggg tgtacgtggt 480  
 cttcagacct caggtgatcc aggagctact cctactataa tcctacgtgg tggtagcgat 540  
 tataacggaa cgggatctcc attagtgtta gtagacggac aagtcctgag aagtctgagt 600  
 gatatcaatc ctgaggatat tgagtcagt gaagtcctaa aagacgccg tgcactgct 660  
 atttatggtg ctgcgctaa taatggtgta atcttagtta ctactaaacg tggtaaagaa 720  
 ggtaaagggt aggtcagtg aaaggctaaa gtcggtagta actattacaa taatccttat 780  
 gaatttatga atgcccgca ttatatctat tggatgcgta cggcatatca acgttctggc 840  
 caaatctata aagattccaa aggtaatggg gttggtacag cagatatgaa tagtctaaat 900  
 aatgcaacct ccctatggta cgggtaa 927

<210> 5055  
 <211> 807  
 <212> DNA  
 <213> B. fragilis

<220>  
 <221> unsure  
 <222> (55), (111), (202)  
 <223> Identity of nucleotide sequences at the above locations are unknown.

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 atcaatcatt ggctgaacga aataaatgca gaaaatgcac aggcggtaat ctacacccaaa 180  
 gagagtgatg agatcatgaa anagctcagc cttaaattcca gcgaggggcgg atttaagatt 240  
 acactcctct ggctgccgga aaagatgcaa caggcttgtg ccaacaagtt attgaaactg 300  
 ctggaagaac caccgaaaa gacaatcttc cttttggttt cggaggctcc cgatttaatt 360  
 ctccaaaacga tattgagccg caccgaaacg ttcaatctac gtaaaattga ggaagagtgt 420  
 atggccgagg ctttacaagg caaatacggg gtccagcagg caaccagtat ttcgatcgcc 480  
 cacctagcca acggaaaactt tatcaaagcc ctcgagacaa ttcacctgaa tgaagagaat 540  
 cagttgtttt tcgaactgtt tgtcagtttg atgcgactct cttaccaacg gaaaatccgg 600  
 gaaatgaaat tatggagtga acaagtggca ggcattgggac gcgaacgcca gaaaaatttt 660  
 ctggaatact gccacaaaga acgttttcaa tccttgcccg gacgtccggt caatgacttc 720  
 cggaactata tgacattaga agaacagaaac ttcgctacac ggtttgccgt cttcaccacg 780  
 gggctgggag gatcgacgct ggtgtaa 807

<210> 5056  
 <211> 222  
 <212> DNA  
 <213> B. fragilis

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 atgccgataa tgctttacta tccttttcaa aaaggactaa taattcacgc taggaatgga 180  
 aattcttatc atggcactaa atctgtagct tattttcatt aa 222

<210> 5057  
 <211> 1680  
 <212> DNA  
 <213> B.fragilis

<400> 5057

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tatacagcaa	acgatataaa	atcatattct	gacctgtttg	atgtgttttg	gaatacaatg	180
aatcaaaaat	ataattatct	ttacgagcag	agcagtttta	attgggaaac	ggatatataat	240
gaatatgctc	cgaatttcaa	aaaattgaaa	acgttcaaca	gagataagca	gtatagcaaa	300
gcggaaatct	cagaagattg	taataaagcg	atagaatatt	ttacagaaat	catagatccc	360
atcatagaca	ggcacttcta	tgtaaagatt	tcacttcctg	tatcgcatag	ttttatcaga	420
aatgtctact	ttcatgggtg	tatgaagagt	aaagaaaaga	tatataccta	cccttttgaa	480
ctcaagtatg	aatacatgag	atctaaaata	caatctgaaa	caggagtatt	cggacaggcc	540
aacgatatgt	taggtgggtt	cttatcagac	aatcctgaca	tatattactt	cagctttaaa	600
tcattttaca	taagtaatca	ttatatattg	tcatttgcca	gcgaataact	ggttatagac	660
gataaaagtc	cgtactatct	aacagaaaaa	gagatcagag	atactgtcga	agcgaataaa	720
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aatcaatcag	aaaatccaga	caatagtttt	attgaggcat	tatccaaagc	aaaagaaaat	900
gcgcctgata	taaatattga	attatcacag	ttaagtgggt	tgaaagaatt	tagattaaat	960
cctaattata	ctacatgggt	taaacagcgc	tcaaccgaac	atttacaatt	agcatgtgaa	1020
tataccgtct	ttctatcaaa	catagataat	gtcatcaaca	atcaatataa	aatagatttc	1080
tatagaaact	ttttgggtacc	cctcaaaagt	ggaaaaataa	aaaagataat	actggatcct	1140
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aaaccggacc	tactagtaga	cccactaaca	gaagatgaag	ttcgtgaaat	ggctctttca	1620
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 <212> DNA  
 <213> B.fragilis

<400> 5058

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gctataagtg	actatgaagg	cacttatagc	ggtagcatgg	ataatatcat	aatgagaggt	180
aagccttatg	aatcacgggc	tgcaacttat	aaaatagagg	gtggccggtt	gaaatgtgat	240
tttccgcaga	taggtagtat	gccgggtaca	attactatct	ctttggctgt	ggaagtagat	300
gaggaaaccg	gcgagattac	agcttacaac	ggggacgaag	caggcacttt	gtcgtttccg	360
ttgggaataa	aggtcaaatt	gtatttggtg	gacttgagag	atgcaaagat	tacggataat	420
ggtagctcta	aacaaataga	attttactct	gacgtttccg	gtacattctt	gggagctaat	480
ttccttgcac	ctgtgcattt	tgtaggtaca	aaatag			516

<210> 5059  
 <211> 255  
 <212> DNA  
 <213> B.fragilis

<400> 5059

actctaaaaa	aacgacctat	gagaaaacta	aaaaagccat	attctcaaaa	ttggagaggt	60
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ctgtctgcc	aatggctgtt	tattttgtct	actgttttag	ggattatagc	agggacttgt	120
ttttggattt	ttatttctcg	ctgtggaaat	gaggagtgtt	ttttaaatta	tgatccattg	180
ccggaaatgt	ttattggtgg	cgtaatagga	gcgtttttat	atgttattat	atgggggatg	240
acgtctgata	tgtga					255

&lt;210&gt; 5060

&lt;211&gt; 1494

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5060

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gcagcacaac	aaaaagtcaa	gttagagggtg	ttggagaagg	gcacggaaca	acccattatc	120
gcagccaatg	tgatctatgc	cgataatgaa	gctttgcgaa	atccccaata	tgccattacg	180
aatacatccg	gacaggctga	attaaagctt	ccttctaagg	gaatctgcta	ttataagggtg	240
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atztatatga	aagaagatga	cctgggaata	aatgaagttg	tcgtgacagg	ttcacgtaca	360
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gatgccggat	atagtaatct	tcaacaggca	ctgcagcagg	aaacgcctgg	acttaacata	480
cagaagggtg	ggttcggtaa	tgaaatctcc	atgcaagggt	tggacgcacg	ccacgtggtg	540
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tttaacctgc	atgccataga	tccgctcgag	atagtgaag	gtgcgagcag	taccctctac	660
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tcgatagatg	ccggaatacg	ttatgggcag	atgaatgaac	gcaattacaa	gcatccgcaa	780
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gttacgagca	attacttcaa	cggacacagc	ttaatattgg	gtatggagca	tacgtcggat	1380
gaattgactt	ccgatcgttt	ctccggcaat	gctaaccatg	acctgaaaac	gcgtgcattg	1440
aaggaaacag	aatactttct	atcgtcactc	atggctgaaa	ggccctcatt	tccc	1494

&lt;210&gt; 5061

&lt;211&gt; 183

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (13), (15)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5061

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agagaagaaa	caaacgctca	gaaattgggg	aataagacag	gtatatactc	tgttcgaccc	180
tga						183

&lt;210&gt; 5062

&lt;211&gt; 198

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5062



tttattttatt	gtaatccaat	cggagaggta	tgggggactt	gctttaatcc	tgctgccctg	60
cttttgctaa	cttccttttag	ttcgatagtg	gtttgcagta	tgttttat	ctttctacag	120
gtatctgtag	aagaaaccaa	taaaagaaaa	tcatttataa	actatataaa	aagaaaactg	180
aaatgtataa	taaaataa					198

&lt;210&gt; 5063

&lt;211&gt; 2796

&lt;212&gt; DNA

&lt;213&gt; B. fragilis

&lt;400&gt; 5063

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ttatggctat	tttcagctac	cctgtccgct	cagcagggtga	aaatagtcaa	aggacatggt	120
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acaaacaatt	atattcgtga	ttattctttc	ggattgaccg	cttacgccgt	ttttccgggt	2520
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aacgtttacat	cccatggatt	gtccgaacga	tatactcagc	agatcggcag	ttatttcatt	2760
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<210> 5064  
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<400> 5064  
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 cgactggatc gtggagacgc cagtattctg gagtacaata aggttcagtt gaatctttcc 180  
 accgtgcaag gggagatgtc aagaatagaa gtggagagga acgctcttct ttccgaactc 240  
 aaacgattga atgggtggat ggatgtgatt tttgaggcga gcaactattc tccggcttcg 300  
 ctgcctgtca attttgaaga ctggatctctg tccggtcaac aaaagaatcc gctactgcaa 360  
 tacgtaaaagc aacagataga ggtcagtaag gagcaggtta agctcggtaa ggccatgaca 420  
 cttccgaaat tttcagccgg ttattcgtcg gaaaggaccc ttggacaaaa atatcagggg 480  
 ataagtgtgg ggatttccat ccttttatgg gagaataaga atcgggtgaa gcaggctaaa 540  
 gctgggtgtt tggcggcaca ggccagagag caggatagca aacagcagtt ctatgacagg 600  
 ctccggaatt tatatatgcg tgccagtggc ctccagcaga cagccattgc ctatcgtgag 660  
 tccctcaagg cactcaataa taccgcgtta ctgatgaaag cactggatgt gggtagagata 720  
 tccttggttaa actatatcgt tgagataggg ctgtattatg acacagttaa tcagacgttg 780  
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 <213> B.fragilis

<400> 5065  
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 agttttaagt cgggtctatc caaaagcatt ttgaatagcg atgtttctaa tttgggtcaat 180  
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 aaagatttta tagtaggaac agggctggga ttcatacaaa agaattatga atacaaaaag 300  
 acggataata ttacaggaac acatacactg tataaaaaaca actttatgga tataccgtta 360  
 aatgtaggct tgtatctttt taataaccct cataaagaaa atgggtatat gctaaaagtt 420  
 caaggtggcg tcttctatga gtacttcaca agaatgcac ggaaaggcga atatccaatc 480  
 tttgcacaat tacaagaaga tggttcctac atcaaagctc aggtaaatga aacatacgat 540  
 ttttaagagaa atgaaaacaa cttgaaaaga aacctattcg ggatagaggg gacaggagaa 600  
 gttggctatt ctttcaatag gatcgacgtt tttgcttcat atacctatca gtatgggtctt 660  
 accgatatat acaaagcaaa aacttcttct aatcgtaaat caaaaagaat ctcaaacatc 720  
 atatcgttag gcgttgccct taaatttttaa 750

<210> 5066  
 <211> 687  
 <212> DNA  
 <213> B.fragilis

<400> 5066  
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 agcgatgaaa agataacaca ggagccacct tcccagacat atgttaaaaa ggcgaaagag 180  
 attcttgcag gagatattgt actctctacc agagcaacaa tgaatgggtg ggacaagaca 240  
 ttgttgaaga gtggttgccc aaccaaattt aacttttctt ggcgtgagga cggatgatg 300  
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 gctacgaaaa tcatgcagct caacagttgg gaacaggatg aatatcccgg agatggatgg 420  
 attaagtttg ttggtacaga tggtaattgt acgacttccg gtgatgatgc cgaagataag 480  
 caagaaggga gcggagcgag agtagatgg tatttgaacg tgaataccaa ccaaatagag 540  
 tttattgtag attacaatat gatgaatgtc cgcactgaaa catttttgca aacaatcgat 600  
 aaaaccgta tcgatcgctt taaggaagag tttgcacaat acgagaaaga tttggaagag 660  
 gctaagaaag accaaggaaa ggcctaa 687

<210> 5067  
 <211> 1428  
 <212> DNA  
 <213> B.fragilis

<400> 5067  
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 agtgagttga agacaatttt gcaacagaaa ggataccaat ttaatgaaca gggtaattta 180  
 ctggttgatg atttagctaa taatactact acttttagatt tatcgggaaac aaaactttct 240  
 aacttgctcg aacttgatat tcttcccaat ctgacagaag taaaattgtc agataacgat 300  
 tatggctcctg tattcgactt ttcaaaactg cccaaacaga ttacaggaat tgatctgact 360  
 ggtaaatgata tttatgatta tgataatctt gttaacgttg tagtagaaga aaatggtaat 420  
 gaaacagtaa caaatttgca tgatattacc aaactttacc ttccccggac agctaaagac 480  
 aatattaagg atctggtagc tttctatatt aaaaataagg acgctataac aaatgggaaa 540  
 atagatatga agataaaaga tgagagcgga accttataaa cgtataccac attgagggag 600  
 gtgccagatg aaaatttgcg tacttattta caggccaatt tttctgattt attcaatggt 660  
 gaccaaatag atcttagcaa gcatttgga tatgctcaa agactacgat tctgcttatt 720  
 caagctaagt cgggagtgc taactttgag ggaatacaat acattataca gaatccttat 780  
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 gacttgctga atgccggaag tctttttgta cttaatatcg gaactgttg cggtttgagc 960  
 acattagatt taaccacac tatttggggg cagcgtgaaa aggagataga agcagaggaa 1020  
 tccaaaggca gttatttgat cgtttatgat tgccttcgc tgaaagaaat taaactgcca 1080  
 aagaaagatg agctgaaaac gtgcttctta gatcttgaat gtttgatgc attggaaaca 1140  
 tttgatatat ctaatctgaa gatggtaaag aatcttattt ttggaaattt accggaaaat 1200  
 ttcaatctcg tttatccaga gctgactgtt ttttattctc cggaagggag gtctgcaact 1260  
 tctttttgtt gttcagaaag tacattcaat agagaatcga caaagacgtt tcttgataga 1320  
 tattatacta aaggtagcgg agttgaaaag ttaggattta gtatctctat gagttgtaat 1380  
 aagaatgatg ggtacaattg gagaaaagct cttagaaga agtcttag 1428

<210> 5068  
 <211> 234  
 <212> DNA  
 <213> B.fragilis

<400> 5068  
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 tatgccacta ctatttattg gtatggcgat ccggaggcac aggtatttgg aacttcaggt 180  
 attgaagaag cccgcgggca gttgctgcct gctgttgagg cttcggcaga ctga 234

<210> 5069  
 <211> 1185  
 <212> DNA  
 <213> B.fragilis

<400> 5069  
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 gaagtgttga gaaggctttt ggtctgggtg gttgtcttgt cctcggggac attgatggca 120  
 tacgcgggca atctggatat cagccagacg aaagtcatta cgggtacggt gaccgaaaag 180  
 gaaacaggtg atccgttaat tggagtaaac gtttcggtaa aaggctactc gaagggatga 240  
 attacaaaat tgaatggcca gtattcggtc gatgtgaatt ccgataaaga tattctggta 300  
 ttctcgttta tcggaaaggc tacacaggag aaagcagtga aaggattgag tcatattgat 360  
 gtggtgatgg ccgatgatgc cagcatgttg ggcgaagtag tgatccagac cggttatatg 420  
 acacagcgta aagctgatct taccggttcg gttgctatgg ccaacacttc ggatttggct 480  
 cagaaccctt cgactaatgc attgaagtct ttacagggaa aattgccggg tgtatttatt 540  
 actacagatg gtagtcctgg gggaaatgct tcgatacaga ttcgcgggact tacgtcactg 600

aatg	cg	cagc	gac	gatt	gg	cagg	gacta	taac	ctgc	gt	660
gata	tca	aacc	cg	gca	atat	tga	atcg	att	atgc	ggc	720
attt	atg	ggt	cg	ag	agct	gc	cg	gtg	tg	att	780
ggt	ga	atc	ga	att	ag	ct	ga	ag	gt	ct	840
gac	ctg	ttg	at	acc	gat	ga	gt	atg	gg	ac	900
aa	act	tg	gt	g	aa	at	ca	ag	ca	aag	960
aac	ggt	tat	c	g	tact	taa	tt	cc	gt	gaaa	1020
atg	cg	ctc	gg	cg	ata	ctaa	ct	gg	at	cg	1080
cat	ca	gatt	t	cag	at	cg	ag	tg	gt	act	1140
gaaa	ac	acag	aag	gt	att	ca	gatt	gaa	act	taa	1185

&lt;210&gt; 5070

&lt;211&gt; 192

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5070

cgcc	agg	gt	cg	tact	gca	tt	gt	gac	aca	cc	gat	ggt	at	at	cg	ggg	agc	at	cc	gg	act	g	60	
cac	gag	acaa	gc	ag	tccc	ga	cag	cat	cg	at	cg	ag	ta	aga	aa	ag	tata	cg	gt	tc	at	gg	tc	120
gg	tt	att	aca	taaaa	agg	ttc	cg	gag	gg	caaa	tata	aca	aatt	tc	cc	tc	cg	ga	at	ct	ccc	acc	180	
tg	ct	tg	gt	tt	aa																	192		

&lt;210&gt; 5071

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5071

gag	at	gg	aaaa	catt	tct	acc	g	cac	ac	at	gcc	tac	ctt	gt	ttg	ag	ca	ca	cc	aa	tg	cccc	gg	tc	60	
cg	cc	gc	g	acc	tg	at	gg	ac	ga	aata	aa	act	gg	agt	g	acc	gc	tg	att	gg	ta	caa	agg	ga	aca	120
cg	tg	gc	gt	gg	g	aaaa	acc	ac	ttt	ct	g	ctt	ca	aat	ac	g	cca	agg	aga	ag	tt	cg	ga	acc	g	180
cg	tc	gt	gcc	t	ctt	t	at	caa	cat	ga	aca	ac	tt	ct	act	tt	ct	cg	ga	ca	ca	catt	gt	cg	at	240
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gg	g	gt	g	ct	tt	cc	aa	g	t	cc	tt	tt	gg	at	t	tt	tt	ta	ag	ac	ta	cc	tc	ca	cg	600
tac	cc	ct	tt	ct	t	cc	tc	g	ag	aa	ac	g	ca	at	tt	tc	tg	aga	at	tc	tg	ct	ca	ag	ac	660
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gat	gt	g	ct	gg	ac	act	tt	ct	t	tg	aa	ac	ac	g	at	gt	gg	aa	ag	acc	aca	aa	ag	gt	gc	1020
gac	aga	ga	aca	c	ct	cg	tt	cat	gg	tt	g	ac	ga	gt	g	at	g	cc	gt	t	ca	aa	at	at	gc	1080
gca	aaa	att	a	aga	ata	a	ccc	cg	g	ag	t	g	ac	g	t	at	g	ct	tt	gc	aca	ag	gc	aga	aat	1140
gg	ca	at	ca	ga	t	acc	act	ct	g	at	gt	tc	gg	c	tt	tt	at	at	aa							1182

&lt;210&gt; 5072

&lt;211&gt; 1479

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5072

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&lt;210&gt; 5073

&lt;211&gt; 906

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5073

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gactaa						906

&lt;210&gt; 5074

&lt;211&gt; 2307

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5074

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tcactcatag	gttgctgtat	gatcttactg	ctattgacct	cctgttattc	aaaagaagag	120
cggcgggtat	tggtgatcca	ctcttatgaa	aaggattacc	aaggatatgc	agaattcaat	180
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accggaatcg	gtatcccgcg	gtccgaacaa	aagatgatat	tcggccgatt	ctacaaacag	2160
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&lt;210&gt; 5075

&lt;211&gt; 849

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5075

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&lt;210&gt; 5076

&lt;211&gt; 858

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5076

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&lt;210&gt; 5077

&lt;211&gt; 2730

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5077

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&lt;210&gt; 5078

&lt;211&gt; 645

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5078

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&lt;210&gt; 5079

&lt;211&gt; 846

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5079

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&lt;210&gt; 5080

&lt;211&gt; 1173

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5080

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&lt;210&gt; 5081

&lt;211&gt; 375

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5081

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&lt;210&gt; 5082

&lt;211&gt; 1239

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5082

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1239

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 <213> B.fragilis

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 <212> DNA  
 <213> B.fragilis

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<210> 5086  
 <211> 3582  
 <212> DNA  
 <213> B. fragilis

<400> 5086

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&lt;210&gt; 5087

&lt;211&gt; 846

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt;

(782), (806), (824), (825), (828), (829), (830), (832), (837), (838), (842), (845), (846)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5087

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&lt;210&gt; 5088

&lt;211&gt; 843

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5088

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&lt;210&gt; 5089

&lt;211&gt; 1854

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5089

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&lt;210&gt; 5090

&lt;211&gt; 1710

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5090

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&lt;210&gt; 5091

&lt;211&gt; 708

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5091

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&lt;210&gt; 5092

&lt;211&gt; 238

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5092

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&lt;210&gt; 5093

&lt;211&gt; 2157

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5093

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&lt;210&gt; 5094

&lt;211&gt; 1194

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5094

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&lt;210&gt; 5095

&lt;211&gt; 915

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5095

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&lt;210&gt; 5096

&lt;211&gt; 252

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5096

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ggagtgcagc	aggaggttat	tgaccattcg	gatggttgta	ttgagattcc	ccaatatggc	180
acaaaacatt	cattgaatgt	atcggttaaca	gcaggaattg	tgatctggga	tttattttaa	240
aagttgaaat	ag					252

&lt;210&gt; 5097

&lt;211&gt; 243

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5097

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aacgtatcaa	agcgcacaa	acagactacg	tatcattcat	tctttattta	ctcgatcct	180
gtttgggtga	tatacccaaa	accactacct	ttgcaccctc	aaaacccaaa	caaaagcgac	240
tga						243

&lt;210&gt; 5098

&lt;211&gt; 423

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5098

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tga						423

&lt;210&gt; 5099



<211> 915  
 <212> DNA  
 <213> B.fragilis

<400> 5099

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<210> 5100

<211> 963

<212> DNA

<213> B.fragilis

<400> 5100

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taa						963

<210> 5101

<211> 1488

<212> DNA

<213> B.fragilis

<400> 5101

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&lt;210&gt; 5102

&lt;211&gt; 645

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5102

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&lt;210&gt; 5103

&lt;211&gt; 189

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5103

aattacccgc	cccacatcag	aaaagccata	aaggcttttc	tttattacct	caaaattcct	60
aaaaacacaa	tcttcttttt	acctaataaa	ctttcaataa	cctattcttt	ttttaccttt	120
aaaaatcttt	acctaattga	aaatcacttg	aaaatttttt	attaccttaa	atctttatct	180
aatacctaa						189

&lt;210&gt; 5104

&lt;211&gt; 222

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5104

agacattcac	tgcccactgg	gattattgca	acaaaatact	cagatggatt	cttccttctc	60
tcccggaaaa	cgaatttaaat	aagtattgca	cttattgcaa	cggcattgct	ttgctacgac	120
tggagtctgt	ctctgaagtg	gtggagctta	ctttatatac	tgatgttcat	catttgtctg	180
gctatcccg	attatctggt	acgacaaaaa	acaaaaaaat	aa		222

<210> 5105  
 <211> 1359  
 <212> DNA  
 <213> B.fragilis

<400> 5105

ataacagtgc	cctcccgggg	tcaggaaggc	cgtttactaa	cacattattc	aaaaacatca	60
atgaacaaaa	gatgcttact	gaccatcctc	ttgggaggat	gcgcggcaat	gggtgcattt	120
gcacaacaac	acgcgacagg	caagaagaca	gagatgagt	ttgacctgaa	tcctgtagtt	180
gtaacaggta	ccggtacaca	ccaaaggctc	aaaaacacac	cggcaccggg	ggaagtagta	240
accgccaatg	aaataaaagaa	agccgggcac	acagactttc	agcaggcaat	gaccatgctg	300
gttcctttctc	tttcgtttctc	taccaactca	atgggatctt	acctgatgat	gaacggactc	360
tccaataaat	atgtgctgat	tctgatcaac	ggacgtaaac	tgaccggaga	taccgctaata	420
aatatcgacc	tctcacgcat	tgatatgagc	cgtgtgaaac	gcacggaagt	gctggatggg	480
gccgggttcgt	cactctatgg	ctctgacgcc	attgccgggtg	tgatcaatat	catcaccaac	540
gaaccgaaag	aactgatgca	ggtgacttct	accaccgcgt	atgaagatca	tcgccaactg	600
acacaaatgg	taaatgcgga	tattgcaaca	gaaaagttcg	gctcatatac	ctcctataaa	660
cacgaacaaa	gtgcaggatg	gcagaacagc	gatctggcat	atgttactga	taaaaaagggt	720
aatgtatcga	cagtaccgac	cgtatcagct	acatccaatg	gtttccattc	taatctggta	780
aaccagaaat	tcacgttcga	accgactgaa	aagctctcgt	tctatgctaa	cggaggatac	840
tattggaagt	tgacggaccg	ccctgtatac	acagcggata	tcgatggagg	ttccaagtat	900
gatctacatt	acgaatcgta	taacttcggg	ttaggaggac	gttacaaaat	caacaagcgt	960
tcttccatcc	aactcgattt	gatgaatgat	aactatatgc	agaactacaa	atatactgta	1020
gctgacgata	aaaataagat	tgctattgga	gattacgcca	aaaccaaaga	gcagcacttt	1080
tatgatcgag	agctaaaggg	aatcttcaac	tttgccaaaa	acaacatgac	ggtagctggg	1140
gtggattacc	gctctgaaag	cctggatcgt	cccagtgcaa	gggtggacaa	gtcagtgtat	1200
acggcatctg	cttatgcgca	acacgaaatc	aagttatgga	actgtttgac	cgggtattgcc	1260
ggcgtacgct	atgattatca	cgagctggca	ggcggacgct	tcactccgaa	gctggctgtg	1320
gtcttcacca	cgggggtgga	cagaaccggg	cttcatctc			1359

<210> 5106  
 <211> 234  
 <212> DNA  
 <213> B.fragilis

<400> 5106

cctgtaaagc	atgacgggaa	ggtagctttt	caaaaaggga	tagtcaggaa	acctgccgaa	60
gcagacatag	ataacagtgc	cctcccgggg	tcaggaaggc	cgtttactaa	cacattattc	120
aaaaacatca	atgaacaaaa	gatgcttact	gaccatcctc	ttgggaggat	gcgcggcaat	180
gggtgcattt	gcacaacaac	acgcgacagg	caagaagaca	gagatgagt	ttga	234

<210> 5107  
 <211> 630  
 <212> DNA  
 <213> B.fragilis

<400> 5107

agtaaagaaa	caattaatgt	aaagttaaac	tttaagagag	aatttatgaa	aagaaaatta	60
atgctgttat	tgacttgcct	ttttatgggt	ataggtctag	taactgcca	aactcagaag	120
gtaacagggtg	ttgttatttc	tgaagaagac	gggcaaccag	ttgttggagc	ctctgtattg	180
gctaaaggca	ccactgtagg	tggtattact	gatgtagatg	gtaaatttac	attatctggg	240
ataccaagtt	ctgcaaagac	tttgagatt	tcgtacatcg	gaatgcagac	tgctgaggta	300
gcaattgcac	cggtaatcaa	agtgatatta	aagactgatg	ctaaggcact	tgacgaagtt	360
gtagtaacag	caatgggtat	ctcaaaagag	agcagcaacc	taggatatgc	tgtgcaggat	420
gttaaaggag	ataagctgac	tcaggcttca	agcagcaacc	ttccagcgc	tttgcaagggt	480
aaggtttcag	gagtggaaat	atctccgtca	tcaggatagc	cgggtgcttc	ttctaaaatg	540
actattcgcg	gttcacgttc	atttacagga	gataaactc	cattgtacgt	agtagtcttc	600
accaaggggg	ttcatccaac	ggtgttcatt				630

<210> 5108  
 <211> 207  
 <212> DNA  
 <213> B.fragilis

<400> 5108  
 tgcagatgct atcaatcaca tgctttacaa gtttatgcag aaattgagaa aaaagaattg 60  
 ggattggtgc aaccagggaa acagaattca ttggatttat ttaaagattc ttttgaaaat 120  
 aaaaccaagg ccctcaattt attgattttt tcccacgaaa ttccaaaaac ttctttgaag 180  
 gaaagcccaa aacgcaattt ttttttaa 207

<210> 5109  
 <211> 1845  
 <212> DNA  
 <213> B.fragilis

<220>  
 <221> unsure  
 <222> (1708), (1755), (1761)  
 <223> Identity of nucleotide sequences at the above locations are unknown.

<400> 5109  
 aagcaaaccc tctctgatac ttccagcccc gtggtacgca actgttctat gtcattccacc 60  
 attaatgggt gtggtgtatg gatgtgtagt gaccatacta tatttatcgg aggtacagga 120  
 gggcttagtt cttttctgga aaaagacctg aacaaagaat atcccaaacc taagctctat 180  
 ttttcaagtt tatccgtcaa caacgcacgg ataagtccgg atgacaaaag tcgataactg 240  
 acagaagggc tcccttttgt cggggaaata aatctaaatg ccacccaaaa taacctgact 300  
 gttgagtttg cttcttccaa ctatgtggat atactgaata atacttggtg tgagtatcag 360  
 ttagaagggt ttgacaagca atggctactc acctcacaaa caagcctgaa atacaccaat 420  
 ctggatcctg gagactacgt gttacacgta cggcaaaaag gcaactccct gaaaatgcgc 480  
 aaagcacaag agatcttatt acaaatacat atcaataccc catggtacct tacttggtgg 540  
 gcatggctca gttacatcac tatcagcatt tcagtgacct attttatctg gcgcgaaaaa 600  
 agttccagaa gaactttggc gatgtcgctg gagaaagaac gtattgaaaa ggaacatatt 660  
 gaagagatga accaagctaa actacgattc tttaccaatg tgagccatga gtttcgcact 720  
 cctttaactc ttattataag tcaggtagag cttatgttac aaaagaatac gatacctcca 780  
 tctttgcata atagtatttt caggataagg aagcatgccc aacaaatgaa acttctaatt 840  
 tcagaattgc ttgactttcg gaaattcgat cagaactata tccaattaaa actatcgga 900  
 caaagtctga atacattttt agaagaagtc tatctttctt tttctgctta tgctctcag 960  
 aagtcattt cttaccatct gaagctgttg gagcaggata tatctatttg gatagatgac 1020  
 tggcaaatgc gaaaagtfff gtttaatttg ctttcgaacg catttaaaca tgttccggat 1080  
 aaaggagaaa taagcatatt aacctctacc acaccggatc aggttggtat tgcagttaag 1140  
 gattccggga atggcattag taaagaagaa caggaacgga tatttgatcg tttttatcag 1200  
 gcggacaatc ggaataaagc gattcatgtt ggacttggtg tcggacttgc attaacgaaa 1260  
 agtatcattc agctacatca tgggtacaatt gaggtagaaa gtgagttaaa tgaaggaagc 1320  
 tgttttattg tgaagttacc taaaaccctg gattgttttg aaaaggatac tgaagtcgtt 1380  
 tttctggaat ctccggaaaa ggaacctatg gtacaagaga ataccatacc ggatgagaat 1440  
 tttatgaaaa aggatgattc tacattcgaa actcccttga tagatgaacg ggaagggaaa 1500  
 cggaaagtat tattggtaga agataatgtg gagcttttgc aggtactcaa agaaatattt 1560  
 tcatcacttt atcaggtggt gacggctgct aatggcgagg agggactgaa acaggctttt 1620  
 gcagaagttc ccgatttgat agtgagtgat gttatgatgc cggtaatgac aggaacggag 1680  
 atgtgtctga aaataaagaa taacatanac ctgtgtcaca ttccggttgt gttgttgaca 1740  
 gcacttgaca ctgtngatca naatatagaa gggctacccc gtggagcaga cgattatatc 1800  
 acccaacctt ttaatgcaaa aaacttaata acccctgtga aataa 1845

<210> 5110  
 <211> 438  
 <212> DNA  
 <213> B.fragilis

<220>  
 <221> unsure  
 <222> (103)  
 <223> Identity of nucleotide sequences at the above locations are unknown.

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tatgtgccc	ctccagagcg	tttcagcttc	gtcattgaca	agnaggatac	gcagaggggtg	120
gccatactcg	acgaaaagga	acgctcttac	ggacagaagg	aaaggatcag	ggaggctatc	180
gcgaaacgta	ccccgctgga	tctgggactg	aaggacaaga	attccgggtg	ggagtccgag	240
gtcggaaata	tcttcacgca	cggggatatc	ctgctgttgc	gcatgaccct	gataaaccgc	300
acacagatcg	gttatacgac	ggatttcatg	cggttctaca	tccaggatgc	caagatccgc	360
aaaaagacgg	cggtacagca	gctcgagcag	aacatcctgt	tcactttcga	ttataccgga	420
agaagtaccg	gcacatga					438

<210> 5111

<211> 183

<212> DNA

<213> B.fragilis

<400> 5111

atggaaactg	cgtttgccgg	ttatgggatg	gatccggatg	ccaaagccgc	tgctcttccct	60
gaacctgtct	ttcaggggac	aggcgagcgg	gatcttgtcg	gatactccgt	accgggagag	120
tatatcccg	tagttttcca	gtgtctccag	gcgttcgcac	ctgtccagt	ccttgtcgag	180
tag						183

<210> 5112

<211> 582

<212> DNA

<213> B.fragilis

<400> 5112

agccgacaaa	atattaagga	ggatagcccg	atgaaactac	tgctgcccct	attgcttttc	60
tgccctccc	tcaatggctc	aaacggcgga	aaggaaactac	tgcacaaggc	actggacagg	120
tgcgaaacgc	tggagacact	ggaaaactac	cgggatatac	tctcccggta	cggagtatcc	180
gacaagatcc	cgctcgctg	tcccctgaaa	gacaggttca	ggaagagcag	cggctttggc	240
atccggatcc	atcccataac	cggcaaacgc	agtttccatt	caggatttga	catggccgta	300
ggactggcag	ccccggttta	cgccaccgcc	tcgggaacgg	tttctttcgc	gggaaggaaa	360
ggggggtag	gaagatgcgt	cattatacgc	cattcttatg	gctttgaaac	gctgtatgcc	420
catctggccg	cctattacac	caccgaaggc	caaaaagtcg	acaaaggggc	tgtaatcgcg	480
tttgccggga	gcacgggtaa	aagtacgggc	taccacctgc	attatgaaat	cagaaaaaac	540
ggtaaaccta	taaaaccata	ctgggtatggc	tatgacgatt	ga		582

<210> 5113

<211> 354

<212> DNA

<213> B.fragilis

<400> 5113

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tccgcaaaaa	gacggcggtta	cagcagctcg	agcagaacat	cctgttcaact	ttcgattata	120
ccggaagaag	taccggcaca	tgaaagccgg	acattcactg	tggccatgaa	caagttcacc	180
atcccggata	agaaacggct	tatcatcgag	atccaggaga	ggaacggcgg	ccggcatttc	240
ctgtacaagc	tgaagaacaa	gtcgtctgtg	acagcagagg	aggtattcag	aagcagaaag	300
caacaggaaa	cggaggatga	agccgacaaa	atattaagga	ggatagcccg	atga	354

<210> 5114

<211> 354

<212> DNA

<213> B.fragilis

<400> 5114

aaccatactg	gtatggctat	gacgattgaa	caggaaatag	aacagctggt	actgcagtgt	60
atcgcacg	acgggctgaa	ggcctgccc	aaagaccttg	ccttccttga	gaaatacggg	120
ctgaagaacc	tatatctctt	ttccctggaa	tacgcgatgg	aagggacgga	tacgacgggt	180
ctcgacagta	aggcgaaagg	gttgatcaga	tggtagctct	attcgacgga	ttttcccctg	240
ctgcggcaga	agtatgaacg	ggaaggaaaa	gcggagctga	tgaaatgcct	gtacctggaa	300
gagagatatt	tccgcaagtt	cctggaatca	accggacagg	aggagggatt	atga	354

<210> 5115

<211> 195

<212> DNA

<213> B.fragilis

<400> 5115

gttgtggcag	cggctccttc	cagccccgtg	gtgaagacga	tgtctgactc	attgggtggag	60
cgaaaagggg	cttccgatga	acaacaccga	aaattacttt	ataaacgtta	tggcagactg	120
actttccgcg	aaggtaaaat	cattttcctg	aatagccgtt	gtccggcatt	ctatgtgaag	180
aaggaagaga	aataa					195

<210> 5116

<211> 1548

<212> DNA

<213> B.fragilis

<400> 5116

acctctaaat	attgtacgtc	tatggatagc	attctttttt	ggcttggtcc	gtttgcctct	60
gtttctggctc	tctgttttgc	gctctatatt	cataaaca	tgatgaagga	gagcgaaggt	120
actccacaaa	tgattaagat	tgccgctgcc	gtgcgtcg	gcgctatgtc	ttatctgaaa	180
cagcagtata	aaatcggttg	ctgggtat	ctcggactgg	tgattctatt	ctctgtaatg	240
gcttatgggt	ttcaggtgca	gaatgcctgg	gtaccgatag	ctttcctgac	cggagggttc	300
ttttccgggtc	tttcagggtt	tttggaatg	aaaacagcta	cttacgcac	ggcgcgtacg	360
gctaattgctg	ctcgtacgtc	attgaatgcc	ggattgcgaa	tagccttccg	aagcggagct	420
gtgatgggac	tggtagtggg	cggcctggga	ctgctcgaca	tctctttttg	gtatctgttg	480
ctcaattggg	cgatacctgc	cgatgtgctg	acacccactc	ataaactctg	tatcatcact	540
actacaatgc	tgacttttgg	tatgggcgcc	agcacgcagg	cgctttttgc	ccgtgtggga	600
gggtggcattt	atacaaaggc	tgccgatgtg	ggagccgatc	ttgtggggaa	agttgaggcc	660
gggtattcccg	aggacgatcc	gcgtaaccct	gccaccattg	ctgataatgt	aggtgataat	720
gtgggtgacg	tggcaggaat	gggtgccgat	ttatacagag	catattgcgg	ttccattttg	780
gcaacgggctg	ctttgggtgc	ggccgccttt	attcatacgg	gcgatacggg	tatgcagttt	840
aaagctgtaa	tagctccgat	gttgattgcc	gctatcgga	tcattctttc	tataatcggg	900
attttttcag	tacgtactaa	agagaatgct	accatgaaag	atctgcttgg	ttcgtgggt	960
tgggggacaa	acctgagttc	ggctttgatt	gtagcagcca	ctttttttat	cttgtgggtta	1020
ttacaattgg	acaattggat	gtggatttct	tgtgcggtag	ttgtaggatt	gggtgtgggt	1080
attgttatcg	gccgttcgac	ggaatattat	acttcccaat	cttaccggcc	tactcagaaa	1140
ttgagtga	gtggcaaaac	gggtcctgcc	acagtcac	tttcgggtat	aggactcggc	1200
atgttgtcca	cagctattcc	tgtgggtggcg	gtggtaatcg	gtattattgc	ttcctatctg	1260
ttggcttccg	gttttgattt	caataatgtg	ggaatgggac	tttacggcat	cggatttgct	1320
gctgtcggta	tgctttctac	attgggcatt	acgcttgcta	cggatgctta	tggtccgata	1380
gccgacaatg	ccggtggcaa	tgccggagatg	tcctctttgg	gtaaagaggt	gcgtaaaccg	1440
accgatgcgc	tcgattcggt	gggaaataca	acggcagcta	ccggaaaagg	ttttgccatt	1500
ggctcagctg	ctcttacgga	gctggcattg	ctggcttctt	atatttga		1548

<210> 5117

<211> 900

<212> DNA

<213> B.fragilis

&lt;400&gt; 5117

tttccattgt	cgcaaccgct	tcgggccaag	ctcaaggatt	actctatggt	tgacaagaag	60
tttaacttct	acattgctaa	cgacctggga	cgtaacggct	actacgatca	aaagccgatt	120
gccgaattaa	tgggaactat	gggtgaggaa	ataggaccgg	aattttgtgct	ggctgccgga	180
gatatccatc	atttcgaagg	agtacgcagc	gtgaacgacc	cgctctggat	gaccaacttt	240
gaactgattt	acagtcaccc	ggaactcatg	atcgactggg	atcccgtact	gggaaaccac	300
gaataccggg	gcaacacaca	agctgtactg	gactacagcg	gagtgaagccg	ccgctggacc	360
atgcctgccc	gttactacac	caagacattc	ggagaaaaag	gagccaccgt	ccgcatcgctc	420
tggatagata	ctgctcctct	gatacgataa	taccgtaacg	aaagcgcaac	ctatcccgat	480
gcatgtcatc	aggatagaa	cggacagttg	gcctggctgg	actcgggtgct	gactgttgcc	540
aaagaagact	gggtgatcgt	tgccgggcat	catccgatct	atgccgaaac	cccgaagac	600
cagagcgaac	gcagcgactt	acagagccgc	ctcgatccta	ttctgagaaa	gcataaagta	660
gatatgtaca	tttgccggaca	tatccacaac	ttccaacaca	tccgcgtacc	gggaagcgac	720
atcgactata	tgcgtaaactc	tgccgggatca	ctggcacgca	aggtgaaacc	gattgagggga	780
actcagttct	gcaacccccga	acccggcttc	tcagtctgct	ccattgataa	acaggaactg	840
aacctgcgga	tgatcgataa	aaaaggggaat	atactttata	cggtaaccgcg	gaaaaaataa	900

&lt;210&gt; 5118

&lt;211&gt; 492

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5118

ggtttagtat	tgaccagcgc	tgatccttat	agaccgcgcg	tgaagacgac	ccggatcaag	60
acaccgaaga	atgaggtggg	aaccattccg	aactcgttta	tcatgtcatc	ccatacagtg	120
aactatagcg	cttcggcccc	cgaatacggg	ctgattattc	actcgggaagt	gaccatcgga	180
tatgatgttc	cctggcgctca	ggttcatcag	ctattgtag	aagctgcctt	gaatactccc	240
ggggtgattg	acgatccgcg	tcctttttgtg	cttgaaactt	cgttgagtga	ctggatcccg	300
gtttatcaaa	tcaatgctta	tatccgtgag	gcggataaat	tggctcagat	atattcggac	360
ctgcatcaga	atattcagga	tcgctttaat	gaagcgggca	tcgaaatcat	gtcgccctcac	420
tatatggcta	tgcgtgacgg	caatgagtct	acgattccca	aagatgattt	gaggcccaag	480
actgataaat	aa					492

&lt;210&gt; 5119

&lt;211&gt; 1002

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (810), (911), (925)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5119

tttatcattc	tcttacctat	taagtatgag	aaaagtcttt	tttccagtct	ttatattaca	60
ttatctcaca	ttgcctctgt	aagaggtaa	agcgtagcat	acctaataca	caaattattt	120
tctaattatt	ttccagaagc	tctgcaagct	cagcatagct	attttaaact	catacccact	180
tcctcggaag	gaggagatcg	cccacgaccc	gatcattcac	taaagaaaca	acaaatactt	240
aacattatga	aatcatttaa	aatcatgctc	atcacgggat	tatccgtaat	gactctgagt	300
tgtagcgaga	aaacgacgac	agaaattcct	gaaacagaat	tgaaaaacat	tagttgtagc	360
acccaattag	tactcattc	atctgtctaa	accagaggag	cggcaccaac	aaccttgaat	420
gaaaacgatt	tcgtgcttta	tgcattcaaa	aaaaacgggtg	aaggtaactt	tagttatgaa	480
gaagccaaac	atgaaacaag	tgtcattgat	ggcggagttt	ggaaatacaa	tgcagctttc	540
ccggtaggca	cctacaaatt	catcgattt	tataacctgg	acgagaagaa	ccaagccgct	600
ctcaacacga	ccataacagg	tatcagtaac	caaacttggg	aaaacatatt	gaagagtatt	660
gttattaccc	attttccttc	cgccaccgat	caataccatg	aagatatgaa	tgaaatattc	720
tgtggcaaaa	caaaagatgc	aatcgataac	tccagtggag	tgggcggaga	tgacaatgaa	780
ataaaaaatca	aattaactct	ggaacgcatn	gtatcacgca	tcgacattaa	gtttatcaaa	840
gtggcatcgg	atgacgacca	tatagaagta	ccttatgcta	cgggcaataa	tttcgggtgga	900

acaagtacta nctcgtggac ttcgntaatc ttcacatcgg ccaacgtacc tcttaaatat 960  
aatcctaata gagaaaatcc ggattatggt acaggagttt aa 1002

<210> 5120  
<211> 903  
<212> DNA  
<213> B.fragilis

<400> 5120  
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ttgaaaaaag gtgttgatgc tttggctaata gcagtaaaaag taacactagg cccgaaagga 120  
cgtaaatgtga ttattgaaaa gaaattcgggt gtcctcaca ttactaaaga tgggtgtgact 180  
gtagcaaaaag aaattgaact gacagatgct taccagaata ccggtgcaca gttggtgaaa 240  
gaagtggcct ctaaaacagg tgatgatgcc ggtgacggta caactactgc aactgttttg 300  
gctcaggcta ttattgctga ggggtctgaag aatgtaactg ccggtgcaag ccctatggat 360  
attaaacgtg gtatcgataa ggcggttgcc aaagtgggtg attctattaa acaccaggca 420  
gagaaagtgg gtgacaacta tgacaagatt gagcagggtg ctactgtttc tgctaacaat 480  
gatccgggtta tcggtaaact gattgccgat gctatgcgta aggtttctaa agacgggtgtg 540  
attactatcg aagaagctaa aggtactgac actacaatcg gtgtggtgga aggtatgcag 600  
ttcgatcgtg gttatctgtc agcttacttt gtgactaaca cagagaaaat ggagtgtgag 660  
atggagaaac cgtatatcct gatttacgat aagaaaattt ctaatctgaa agacttcttg 720  
cctatccttg aaccggccgt tcagtctgggt cgctcctctgt tgggtattgc agaagatgta 780  
gacagtgaag cggtggctac actggtaggg aaccgtctgc gttctcagtt gaagaactgt 840  
gcagtgaag ctcggggatt cgggtgaccgt agaaaaaaga tgggtggaaaa atttcccttt 900  
tga 903

<210> 5121  
<211> 282  
<212> DNA  
<213> B.fragilis

<400> 5121  
aaagtaacta tgaacattaa accattagca gacagagtgc tgatactccc tgcacctgca 60  
gaagaaaaaa caattgggtgg tatcattatt cctgatacag caaaagaaaa acctttgaag 120  
ggtgaagtgg tggcagttgg tcacggtacg aaagacgaag aaatggtatt aaaggcaggc 180  
gatactgttc tttatggaaa gtatgctgga acggaacttg aagtagaagg taaaaaatc 240  
ctcattatgc gtcagagcga tgttctcgct gttttgggtt aa 282

<210> 5122  
<211> 372  
<212> DNA  
<213> B.fragilis

<400> 5122  
agcacctgct ctccctgctg ggcatttacc gtagacggga gccgggcatg cagcctgaat 60  
gtggaagccg taccgacaga gggcacatac gactttacag gcggtacatt gtccgtaaac 120  
gaggggaagcg gcaccgtttc ttccaaggag aacatgctgc tgctcctgcc cggcaggctt 180  
gaagagagga gagcgagat ccgctatctg gaccggacct atgactggta tcttccggca 240  
aacacctttg aagccggtaa aagatatgat tacgcgttga ccctgagcaa ggaaggggtg 300  
ctcatactct ccggtgtgag tgcccgtccc tgggaaacgg gaggagacta taccggaacc 360  
atacaaccct aa 372

<210> 5123  
<211> 684  
<212> DNA  
<213> B.fragilis

<400> 5123  
tccgggataa cgagcgggag ctcgggagcg gaattacggt cccggtacaa cagccggttg 60



cttccagggg	aaaggaaaaa	cctgccttgc	aggaaaagaa	ggaagaggaa	gtacggcccc	120
ggcagcgcaa	agccatggat	agtgtgcccc	gggcaccgac	ccgcagggga	ttcaacacgg	180
tccggctcgt	caggcaggaa	gagaggaatg	tcatcaaggc	attcgtgcac	tccacacaga	240
ccggtatggt	cgggttccac	cctcaagatg	cagctggccg	agaattgcct	gaccgatgac	300
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cgcgttcttg	taaagatcac	ctcggtaaac	ctgggtggaa	acatacttcc	ctttgaaaag	420
caggtttatt	ccgaggacgc	aatacaagga	atctatgtac	cgggcaatgt	gaaggcggag	480
acagcacagg	aagccggagc	ggcgggaata	agcgggtgca	acaccaatat	ctccggagga	540
ttcgatatgg	gaagccagct	cgtggcaggc	gcgggcaaca	gcgtcatcaa	cgccaccaag	600
tcggcagcaa	gcaagaatat	ccggaaggta	aagggtgaaa	tcaagaccaa	ctaccgcata	660
ctgctcaggc	agccgaaaga	gtga				684

&lt;210&gt; 5124

&lt;211&gt; 183

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5124

atggaaactg	cgtttgccgg	ttatgggatg	gatccggatg	ccaaagccgc	tgctcttctt	60
gaacctgtct	ttcaggggac	aggcgagcgg	gatcttgtcg	gatactccgt	accgggagag	120
tatatcccg	tagttttcca	gtgtctccag	gcgttcgcac	ctgtccagt	ccttgtcgag	180
tag						183

&lt;210&gt; 5125

&lt;211&gt; 984

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (135)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5125

ttaattat	at	tttttttca	gatgaaaatg	aaaacaagtt	tttttctttc	agcggtaatg	60
gccgcaggcc	tgctggcttc	atgcagtaac	agtgaagaag	tttttaaatga	gcaagtgcacg		120
gacggcgagc	attcnggggc	acagctgaat	atcgtaacct	ccgtaagttc	cgaaagcacc		180
gaaacaaggg	ccagtttcca	tccaagaca	gattggggcg	caggcgacgg	cgctggcctg		240
ttcatgtaca	aagtcacgg	ctggggagac	gcctacccgc	ggtatgatgc	ccagaacaac		300
aagtcgacca	ggcaggcgaa	cggctggtea	caggccagcc	cggtgtacct	gctggttagac		360
aaggccacca	tatgggccta	ttatccgtat	aaccaggccg	tgacggacgg	taccaaata		420
ccggttcccta	tcaatgtcgg	cacgtccggt	gattacatgt	ggggcaaaag	cactaaccag		480
gtatccgtga	tcgagaccga	tgccagaata	ccgatgaagc	atgcgctttc	acagtttgtg		540
gtgcggctga	aagtctcacc	cgagtaccat	aacgacggaa	acctgacctc	ggccaaactc		600
aaggcaacgg	cctccaagtt	cgccactacc	ggaaccatga	acctgaacga	cgggggaaaa		660
attacgttcc	aacctaccag	cacggagctg	acctggagcc	cgaatacaac	cgttccggca		720
caggacagc	aggcgggtgga	ttatgccgcg	gccatctacc	cgatgacact	ggccgcgggc		780
gaagtgtcgc	ttgaagtgg	gatcgacgg	gcgacctata	cctatgccat	cccgcgaatc		840
acctgggagg	cgggaaagag	atacatctac	tcgatcacca	tgcgttccaa	cgatgcggag		900
atcggaggaa	agaacggaca	gtctgtaacc	atagaaggct	ggacttccac	tgaagaagac		960
atcacccctt	ttccggtcaa	atag					984

&lt;210&gt; 5126

&lt;211&gt; 675

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5126

acaaatgggt	ataaattata	taatgaaact	ttcatgaaag	caaccaaag	catactcaat	60
------------	------------	------------	------------	-----------	------------	----

atacaaagca	tactcaagga	tttctccggc	ctggccgaag	ccaggaagag	ctatacgctg	120
cgcaccaggc	tggtattcat	tttctgcggg	ataaccatcg	cgatggtcct	gttcttcgcg	180
cacagcgtgg	tgaacaatgc	gatgaacaag	atactggtgg	tcaacgaagg	cggggaattc	240
gtccatttca	agtccatgca	gcaggacctg	ctgtacgaaa	gcctcctgaa	aagccactgc	300
cgccggacgg	cctatttcct	gaacagcttc	gacaggcttt	cccttcagga	aaaccgtgcc	360
cgtgccctgt	tcttgggtcaa	taagccggac	gcaaataccg	tatttgccaa	ataccaggcg	420
gaccgtgcct	atggcgatgc	gttggaaactc	ggagttgtct	acaagacgga	gtttgaaaag	480
atcatcgaca	tacgcgccga	cggtgaggag	taccatgtca	ggttctcctc	catcctgagc	540
atcatcaacg	gcgatgagac	caggaaagtg	cggatcctga	gtgagggtac	cgccatccat	600
gccaccccg	gctttccgga	aaatacgtcc	ggtttcttct	tccgtacct	tgaccaacaa	660
tacgagctct	tatga					675

&lt;210&gt; 5127

&lt;211&gt; 1194

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5127

acagctttta	ataatataaa	tattgaagta	aaatttaata	tgaaaccaaa	caaaatttac	60
atcaccaccc	tgcttctgct	gtttttcctt	tcaggagag	cgcagaagat	cgaggaaactc	120
accgcagtcc	ccctgcagat	cgggtatgaa	aagaccttgc	acctgatctt	ccctaccgag	180
gtgaagtatt	acagcatcgg	aggggattac	gtcatcgggt	agaaagtggg	caattgcccc	240
gggatcatat	gcctgaaagc	ggcggaagag	aacttcccgg	gggaaacaac	cctgtcgggtg	300
gtaacggccg	acacaaagt	ctattcgtac	tccatcagct	acaacgcaca	tccggcccag	360
agttatgtgc	gtataggcgg	agaagccccc	acaccgcata	cgctgccggg	aggaaaagaa	420
aagcagctgt	tcctgatctt	ccctgccggg	atcacctacg	tcgattacgg	aagcacgaac	480
gtggaggtgg	acaaggccga	gggagtggt	aacatcctgg	ccgtaaaagc	cgtccagccc	540
tataaggagg	atacgaacat	atcggtcgta	cttgaagggg	gaaagttcta	cactttcgac	600
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atcccggata	agaaacggct	tatcatcgag	atccaggaga	ggaacggcgg	ccggcatttc	1080
ctgtacaagc	tgaagaacaa	gtcgtctgtg	acagcagagg	aggtattcag	aagcagaaag	1140
caacaggaaa	cggaggatga	agccgacaaa	atattaagga	ggatagcccc	atga	1194

&lt;210&gt; 5128

&lt;211&gt; 228

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5128

acaacaacta	aaaacaaaaa	ttacaataga	atggaaacta	tttgggaaaa	agtggattac	60
ctgggcccga	tattatgctg	cattataatg	ggaattgcat	atatacttat	aatgatagcc	120
cctctttatg	cttcacgcca	cgaacagtca	gggcaaagaa	gtgatgaaaa	ggcatctgtg	180
gatggagaag	aaaaagtccc	ggataatggt	ccggaacctg	aaaagtaa		228

&lt;210&gt; 5129

&lt;211&gt; 2433

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5129

agaagaaaca	agatgaaaga	ggaagaggca	tacagcatat	ttgacattat	cagcgagtcc	60
gatggacaaa	gcgtgatcct	gacccggagc	ggcagcatat	gtatcccgtt	cgagctccgg	120
cagccggagt	gctattccct	ttccccggaa	gacatcgacg	aaagggacgg	gatgtaccgg	180

gaagccttca	ggcacatgcc	cgacgggtgcc	tacgtacaca	aacaggatgt	attccttaaa	240
aaagagtacc	acccggggcaa	aggcaccggc	tctttcctgg	accgtgccga	cgcgcgccac	300
tttgaaggac	gcctgtacat	cgaccacacc	tgtatcctgc	actttgtact	tgcagggtctg	360
aaaagcctgg	agaaggcgta	tgtatcctca	cccctggcct	ataaggaaca	tctgcacagg	420
gaagactaca	gaaagctgga	agcctttctc	gaaggggtgg	acaatgcggt	gagcatcctg	480
cagaacatgc	gcgggaactc	ggtgctgccc	atgtcctgtg	aagggatatac	cggattcacc	540
cgcgcatact	ccggcctggt	cgggtgatacg	gacgccgtgg	tggatataca	cgtcgacggg	600
agcctgcatg	tgggaaagaa	ccatgcgcgc	tgctatgcgg	tgtgcgacga	gaccttcctt	660
ccggaaggaa	acatcgagtc	ctatgtcagg	gacgagtcgc	tgccaccggc	cgcttcacaa	720
ctgtaccatc	ccctgatgga	acagttaggg	atgtaccttc	cctacaacca	catcgtaaac	780
cagggtcatct	atctcgaggg	aaacgagagg	ctgcgctccc	ggatcgacg	caacatagac	840
atttacggga	gcaattcttc	catgaacaag	ggcatcgaaa	gggaatttaa	agagctggag	900
aagctccaga	cagagatcct	cgaggagaac	cagatgctgg	tgcgctcctt	cttttcggtc	960
tgtgtcttcg	acgggtcgga	tactgaactg	gagaaggctg	acaaaaggat	cagggaata	1020
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ttcgctgtg	tccccggaca	gatcagtcgt	atgccggtgg	aatatctttt	cctcaccacc	1140
ctgcccatag	cgctctgttt	ctttctccag	tgccgcaagt	tcagcaatga	cgccgaaggg	1200
atctacgtac	atgataggat	gtaccagggt	cccctgcgaa	aggatatctg	ggacgcggcg	1260
aaaaaaagg	tgaatgccc	aaacgggatg	gtcattgccg	gcacgggcgg	gggaaaatca	1320
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ctttcaaacc	tggtcatgag	catgatattc	accgtcatcc	agaaaaagct	gctcagtgac	1920
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acggccacag	gcagcggcat	acacagctcc	gtggccttct	gctaccagaa	gatccgcaag	2040
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acgaaaaaca	tcatcagcaa	cacggacatg	ctgttcgtat	tgccatacaa	ggagggtcatc	2160
taccggacca	tcatcgacaa	gttcaagctg	acgcagccc	ggcagatagc	cctgatgaaa	2220
tccatgcgga	acaacttcgc	cggttccccg	ccttactcgg	aatgcttcat	gcgcatgggt	2280
gagaattacg	cgacggttac	ccgcctggag	ttctccagg	agaagttcct	cgctttccag	2340
acggaaggcg	agatcttgtc	ggacctcgag	gacaaaaccg	gcagcgga	gtccatgcag	2400
gaggccatcg	aagaatatat	aaacgaacat	tac			2433

&lt;210&gt; 5130

&lt;211&gt; 582

&lt;212&gt; DNA

&lt;213&gt; B. fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (481)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5130

agccgacaaa	atattaagga	ggatagcccc	atgaaactac	tgctgcccct	attgcttttc	60
tgctccccct	tcaatggctc	aaacggcgga	aaggaactac	tcgacaaggc	actggacagg	120
tgcaacgcc	tgagacact	ggaaaactac	cgggatatac	tctcccggta	cggagtatcc	180
gacaagatcc	cgctcgctg	tccccgaaa	gacaggttca	ggaagagcag	cggctttggc	240
atccggatcc	atcccataac	cggcaaacgc	agtttccatt	caggatttga	catggccgta	300
ggactggcag	ccccggttta	cgccaccg	tcgggaacgg	tttctttcgc	gggaaggaaa	360
gggggggtacg	gaagatgcgt	cattatacgc	catctttatg	gctttgaaac	gctgtatgcc	420
catctggccg	cctattacac	caccgaaggc	caaaaagtgc	acaaaggggc	tgtaatcgcg	480
nttgccggga	gcacgggtaa	aagtacgggc	taccacctgc	attatgaaat	cagaaaaaac	540

ggtaaacccta taaaaccata ctggtatggc tatgacgatt ga

582

<210> 5131  
<211> 615  
<212> DNA  
<213> B.fragilis

<400> 5131  
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acgggctgtt ccggcaagga agattccctc cccgggacag gagaggcggg acttgagata 120  
gaaaactgtt tcagccgcag taccggtagc gatacgggc atgttccggg aaaggacttc 180  
ggcatgggtg tgctcgatga aacgggaggc tcatataccg gtgtcagcaa tccgctgcat 240  
gtgacctatg gggagagctg gaattttccg cagggtgacg ttaccagaa aacctgccg 300  
ctgttcgctt tctccccgtt ccggagtatc cggggaaagg aagtggctgt cagcctgagt 360  
ccccagacgg attacctggc atcggatgaa gtgcgtctgg actggcagaa cccccaggcg 420  
agtattgaaa tgaagcacct gctctccctg ctgggcattt accgtagacg ggagccgggc 480  
atgcagcctg aatgtggaag ccgtaccgac agagggcaca tacgacttta caggcggtac 540  
attgtccgta aacgagggaa gcggcaccgt ttcttccaag gagaacatgc tgctgctcct 600  
gcccggcagg ctga 615

<210> 5132  
<211> 222  
<212> DNA  
<213> B.fragilis

<400> 5132  
gcctcccgtt tcatcgagca gcaccatgcc gaagtccttt accggaacat ggcccgtatc 60  
cgtaccggta ctgcggctga aacagttttc tatctcaagt cccgcctctc ctgtcccggg 120  
gaggaatct tcttgccgg aacagcccgt aaggggcggc ggcaaaagaa acatggctat 180  
gtgtttatac acttttattt tcattttttg ctattcgttt aa 222

<210> 5133  
<211> 423  
<212> DNA  
<213> B.fragilis

<400> 5133  
ttacgcgttg accctgagca aggaaggggt gtcatactc tccgggtgtga gtgcccgtcc 60  
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agaaaatttc tactgtccgc ttttttattt gcgtccacc tgcgcggata tgcacaggat 180  
gcccgcggcg cgatgaacca gatcctggac ggttacacc tgcgatttt tgccggcctgc 240  
atgcttgtgg ggcttgcctt aggggtgggc cagcagctgg acaacatcat cgacaaggag 300  
aaccggggaa cagcagggga cggcctgttt gccctgggct ggtatgtggg tttctccctg 360  
cttgccgggag tcgtgataac agcggccaaa gccgcaatat ccggcattaa actgaccata 420  
tga 423

<210> 5134  
<211> 189  
<212> DNA  
<213> B.fragilis

<400> 5134  
aaccgatgtg atatggaaac aatacaggaa attatagata tgataaaaga gttatcggga 60  
cgcgacatac tcttttctaag cttctattgt ggatttattc taatactgtc tatacacaga 120  
agtgatgaaa aggcattctg ggtatgaaga gaaaaagtcc cggataatgg tccggaacct 180  
gaaaagtaa 189

<210> 5135  
<211> 1305

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5135

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acaatatggt	gggttatggg	ggctcttttt	attatctcct	ggtttttgga	tacgccactg	120
agaaagaaac	gaaataaaga	taaagtgacg	gatgataaga	ataacaactt	aaaaagctca	180
aatatgactg	ataaaaaaga	acttagaggc	aacctgatga	agaaggtgt	catcctgtgg	240
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ctgcctgacc	tgcaaccgga	cagtgtaccc	gtaaaagttg	aaatgctgat	acggaaggca	660
agtcctcttc	ttgaacatcc	cgaatattcg	gaggatatca	aaaagagggc	agacagaaaa	720
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ctgctttcct	ccgatatctc	cccctttcat	cagatttatg	actgggatgt	acagtatccg	900
tggattcggt	caaagcctga	gatatcagta	cggtagccga	tacggctccg	gtatccggga	960
gcaaacgatg	ccggtataga	acagtcggaa	tatgaaccgg	aagcatgctt	tcccgcatgg	1020
atagtccac	aggagggcgg	acagaccggc	ttatgtcttg	aggaaccatc	cacaggccaa	1080
tactttattc	cggacatgac	cggattaccg	ggactgccgg	aattacaacc	ggatggcata	1140
cccctcagag	tcgagctgct	gatacgccag	gcccactgga	tttcagacgt	ggccgacccg	1200
gcatacctga	aaattatcag	ttactccgca	agtttgaagg	ctttctctac	aaagatatcc	1260
gataatcaag	aagtgaatc	ctgtaatata	caaactgaaa	tttga		1305

&lt;210&gt; 5136

&lt;211&gt; 465

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5136

gccctattgg	acgtccctga	gcccccggtg	aagaccgtcc	agcgactgaa	tatacagatc	60
aacgtctcgg	gtaataccgc	tcccctggcc	ggcctgaaag	gtaccctcac	cggtattttcc	120
accggccggg	accttgtctc	gcgggaaagg	actggaaacg	caagtgtcac	gagcctgttc	180
gcgcgtaaac	cggaaaccga	ccggtggaag	acaagcctgt	acgctttcgg	gttcaacccc	240
gcagcggaga	atatcctttc	ggtaaagatt	gaaatggacg	ggaaggattc	ggtattcaac	300
gaagagcaga	aggtggacct	gaccccgat	ctccggggat	ttgacagcga	tgaactttct	360
ctggaactgg	acctgcacat	cggcaaggaa	ctgaccatag	gagaaccggg	tgtcattccg	420
gattgggagg	atatcccgga	aacagaatta	ccaaactata	attaa		465

&lt;210&gt; 5137

&lt;211&gt; 852

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5137

ggaggaaaagg	aaaatagcca	ggatctccca	ggtaataagc	cagtacgaac	agctcaaaag	60
ggcattgagg	taagagggat	ggaagaagca	tacggaaatc	tgaacgccgc	gtacctgcag	120
ataaagggtg	tggtagtcat	agaggggttc	tacgcgctta	tcgccggggt	tgtcataacg	180
actttcgtct	tcaagctcgt	gggaattatc	aaggagatga	ccaatgaggg	aaaaggattc	240
aacgccaggc	acttctacga	gctgggacgg	gagtacatct	tctgcatagg	cctgatctgc	300
atcatgcccc	tgctgctggg	agcgctcgag	acgggtgctg	cctatggagc	cgacgagctg	360
atgaaatcgc	tcgcctccgg	tgggggtctat	aacccgcaca	atatctggaa	agatccgac	420
agtgccatgc	tggacgagct	gatgaacggg	gacatcaccc	acatagccgt	caacgggac	480
gataccctga	aatgggtccct	tatctcgga	acggtaggca	gtctcttcgg	agtggcctac	540
gattacatca	tgctgctggt	cctctgtacc	cgttacctga	tactgctcct	gctcgagatc	600
atttctccca	tagcgatagc	ctgcctgtac	aataaggaca	cacgcagctc	cttctacaca	660

tggggtcaagc	agatgctggg	atgctacatg	ctctatccgg	ggtttatcct	tgccagcggt	720
ttctcggacc	tgatcgtcac	gaactatgtc	ctgcaaaggt	cctggtcggg	gctgctgatg	780
gttatttttt	ctttcctgct	caagcttacg	atgctcggca	cggtaaaggc	cacagtaaac	840
aaatggttat	aa					852

&lt;210&gt; 5138

&lt;211&gt; 1647

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5138

cccgcggggg	agccttcg	ttccccata	aaaaagagaa	taatggtaag	agcaataaca	60
acgattgtct	gcagtctcct	tctgctgttg	gccttttcct	gcagccggga	agataccggg	120
ccgcaggaaa	ccattccggg	cagcgggatc	gtgacattta	ccgccatgac	cgggcaaggg	180
gaaacgcgaa	gcagccagga	aggcagtttc	gagacaggcg	atgccatagg	cgtattcgcc	240
atcgaaccga	agaccggcgt	gtattgggca	gtgaacaaca	aatatacgta	tgacggacag	300
aagttcaagc	cggaggcgga	agcggacaat	atcatagtaa	ccgtaggaac	cgactttgac	360
ttttacgtgt	actacccttt	caaggcaggc	cagaccgata	taaccggaat	ttcccatact	420
gccggcaacc	aaagcgataa	atcgggatgg	ctctcggcag	acttcatgac	agcgacctat	480
accgatccta	tccggaacta	cacggtccca	ctgcatttca	aacacaggat	gtcgaccgta	540
gaggtcagga	tcgatagaaa	tgacggtgtg	agggaagcca	cgatggagaa	tgtgaaacgt	600
acaagccgct	tcaatcttct	tacaggcggg	atcaccacgg	acgaaagcag	gggaagctgc	660
acgatgcata	aatattctga	aacaggaggt	acgacggtat	tccgggtaac	catccccgca	720
caaaggctta	cgacctcttc	caactatgta	gcccttacgg	gaaccactcc	cataaagcta	780
cgcggaacct	ccgacatggg	taccgaagaa	gggaaaatac	ataattaccg	gatggactac	840
aaaaaacagg	tcaccatcct	ggattatgca	cccgagggaa	ccaccacagg	tgcgggactg	900
tacaatacgg	gaagcaactg	tacggtgtcg	gcgagcgtga	agccgggcta	tgagtttgcc	960
ggctggatatg	aagggggaag	gattgtatcc	ggtaccgcac	aatacagctt	tgaggtgctt	1020
gccgaccgta	ccctcgagcc	caaataccgg	aattacggat	cctggagagt	tacctgacg	1080
gccaatcctt	ccgccatttc	ctggaaaggg	gggacttcga	cgctcagtgc	gggcgcctca	1140
cgtgaggtgt	tcgtcaatgg	ggttaaagag	actctccagg	gagggttcgcc	ctctatcagt	1200
ggaggtacgg	aaggattttt	cctttcaggg	aacacggtga	gcgtatcgga	gaacaatacg	1260
gcatccgcgc	gcagctgctg	atttacggcc	agtcattggc	gtagttccgc	tacggccacc	1320
atcagtcagg	aagctcccc	ggtcagctat	gttttcgagt	attcagacgg	aacggtggct	1380
cacagtgagc	gtgcggaagc	gggggcagg	tcatctctgt	taagtataac	gagccgcaag	1440
actataggaa	acagcatcaa	agagctctcc	tggagtgcgt	cgggtgacag	ctggattcac	1500
gtatcgggaa	gctcggtcag	ctatgacgag	aatccgacca	aggagatccg	cagcgggaagc	1560
gtgaccctta	cacaggcgga	aagcggaaag	acactgacac	tgaccgtcag	acagaagggt	1620
aaaacttcaa	ttgatatcaa	tccttaa				1647

&lt;210&gt; 5139

&lt;211&gt; 447

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5139

ggatacatat	gccttctcca	ggcttttcag	ccttgcaagt	acaaagtgca	ggatacaggt	60
gtggtcgatg	tacaggcgct	cttcaaagtg	gcgcgcgtcg	gcacgggtcca	ggaaagagcc	120
ggtgcctttg	cccgggtggt	actctttttt	aaggaatata	tcctgtttgt	gtacgtaggc	180
accgtcgggc	atgtgcctga	aggcttcccc	gtacatcccc	tccctttcgt	cgatgtcttc	240
cggggaaagg	gaatagcact	ccggctgccc	gagctcgaac	gggatacata	tgctgccgct	300
ccgggtcagg	atcacgcttt	gtccatcgga	ctcgtcgata	atgtcaagta	tgctgtatgc	360
ctcttctct	ttcatcttgt	ttcttcttca	gaagttgtct	gtttatgggt	aagttactca	420
cggtcatgcc	gtacttcgat	tccctga				447

&lt;210&gt; 5140

&lt;211&gt; 615

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5140

ccaacaatac	gagctcttat	gacacgggac	gggaaaagca	gaatagccat	actggcgggc	60
ttggggattg	tagttgtcct	gctggtgtgg	gcattcatcg	ccagcctgcc	ggcctctggg	120
agcaaggagc	cggaaacggg	tgaggtgatc	ctcagaaccc	ggatcaagga	tagctttact	180
ctggatgaca	tgctccagaa	agtcgggaaa	gagaacacaa	gcaaatccgc	ttccctttca	240
ggtttcgacc	cggtaacgga	ggagcctgcg	gatacggccg	ggaatgaaag	ggagatccgg	300
cgcatacagg	agctgatccg	ggataacgag	cgggagctcg	gagcgggaat	tacggtcccc	360
gtacaacagc	cggttgtctc	caggggaaag	gaaaaacctg	ccttgacagga	aaagaaggaa	420
gaggaagtac	ggcccgggca	gcgcaaaagc	atggatagtg	tgccccgggc	accgaccgcg	480
aggggattca	acacggtcgg	gctcgtcagg	caggaagaga	ggaatgtcat	caaggcattc	540
gtgcactcca	cacagaccgg	tatggtcggg	ttccaccctc	aagatgcagc	tggccgagaa	600
ttgcctgacc	gatga					615

&lt;210&gt; 5141

&lt;211&gt; 534

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5141

aacaagaaac	gtatgaagaa	attatgctta	tccttaatcg	tgatgatgac	ggcagacacc	60
gtatcggcac	aatgggccgt	gacggatgcc	ggcaatttga	gccagaacct	taagaacttg	120
aaggagctgc	atagacaagt	gggctacctt	aaggaaacaga	agagcctgct	ggacgagagc	180
ctggacatga	tgcgcaaggt	caactccgtg	gtgtcggact	gtgagacgac	ccggtatatt	240
atcgaacgcc	aggcaaggct	ctccgaaaaa	tgcgtcgatc	tgctcagcgg	gaagcagctg	300
aaccctctga	cactgcagac	actcatcggc	agtattgaac	agatcatggc	cggaaacaga	360
cgctgatac	agctgtcgag	aacgattctc	tccacaagcg	tgaggatgaa	tgacgccgag	420
cggctgtcca	ccctgcagaa	catagagaga	cagacccttg	aggaggaaaag	gaaaatagcc	480
aggatctccc	aggtaataag	ccagtacgaa	cagctcaaaa	gggcattgag	gtaa	534

&lt;210&gt; 5142

&lt;211&gt; 456

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5142

gcattcacca	taatcaacat	tatgcccaca	aattataatc	agttattgaa	agaccttgaa	60
ataggctccg	tttatatcaa	gatctttatc	tgcttttttg	gatgtacttt	catgtttatat	120
ccagtcttgt	tttatttcac	ccatttcttc	cgagaacttt	ccgtatatga	gcagatatatt	180
ttcgcattag	gcagttccgc	tttatatacc	ggattgggag	ttccgctttc	aattacaagt	240
gccataagat	atccggggagt	attctatctt	cctttaatgc	tactgtcagt	ttcggtaata	300
gcaactattt	acatagtctt	ctttatggcc	aggagttatg	atcctcttac	gacattatta	360
tggatcctgc	ctacaagcta	cctgctcaat	ttgattacag	gtgtcatttc	tatcttgagg	420
gagaaaaaat	atcctaagac	tgagatgtat	tattga			456

&lt;210&gt; 5143

&lt;211&gt; 654

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5143

gagctcgtat	tggttggtcat	aggtaacgaa	gaagaaaccg	gacgtatttt	ccggaaagcg	60
cgggggtggca	tggtatggcgg	taccctcact	caggatccgc	actttcctgg	tctcatcgcc	120
gttgatgatg	ctcaggatgg	aggagaacct	gacatggtag	tcctcaccgt	cggcgcgtag	180
gtcgatgac	ttttcaaact	cogtcttgta	gacaactccg	agttccaacg	catcgccata	240
ggcacgggtcc	gcctgggtatt	tggcaaaatac	ggatatttgcg	tccgggttat	tgaccaggaa	300
cagggcacgg	gcacggtttt	cctgaaggga	aagcctgtcg	aagctgttca	ggaaataggc	360
cgtccggcgg	cagtggcttt	tcaggaggct	ttcgtagcgc	aggctcctgct	gcatggactt	420
gaaatggacg	aattccccgc	cttcggttgc	caccagtatc	ttgttcatcg	cattgttcac	480

cacgctgtgc	gccaagaaca	ggaccatcgc	gatggttatc	ccgcagaaaa	tgaataccag	540
cctgggtgcgc	agcgtatagc	tcttcctggc	ttcggccagg	ccggagaaat	ccttgagtat	600
gctttgtata	ttgagtatgc	ttttggttgc	tttcatgaaa	gtttcattat	ataa	654

&lt;210&gt; 5144

&lt;211&gt; 615

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (208)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5144

aattttccata	aaagaagacc	caaccaaagc	aattttttta	agaaagaacg	agatccacgg	60
attctctatt	tacaagttcg	ccaacaggga	cagccgcaag	ccaaggagcg	attccgggac	120
ttgtttgtca	tcggttgtct	gaccgctcta	aggtattcgg	attattcgac	attgacccaa	180
gacaacctgc	aaggatgttt	catagtcnag	cgtaccagga	aaacgaatgt	ggatgtaaag	240
gttcctgcac	atgattatgt	caaagagata	tttgagaagt	acgacgggga	tattccgaca	300
gggctatgta	tccagcactt	caacaaatat	cttaagggtga	tcattgcgtga	aataggcttg	360
actgacaaag	tttcttattc	atttacccaa	ggcgggaaac	tgcatacggg	aactaaagag	420
aaatgggagt	taatcagcag	tcataccgcc	aggagatcgg	ctgccacgaa	tatgtatctg	480
accggccgca	tgaaaacatt	ggagatcatg	aaactcacca	gacaccggag	tgagcataac	540
ttcttcgggt	acatacgggt	aacgggtgat	gataccgcca	gatccataag	cggagatatg	600
tttttcagaa	aataa					615

&lt;210&gt; 5145

&lt;211&gt; 216

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5145

cgaatttttaa	aaattatcac	catgaaaaaa	tttattgaag	tttcaacaga	aaatggcaaa	60
tttcttgtga	atgttaacac	tatcagttgt	ctgtacacta	taaaagacgg	ccgtacgcgc	120
attacactca	cagcgccgtc	gtccaagggg	gacatcttta	ttaacgctca	agaatcttac	180
gaagaagtta	aggctttgat	taaggctgct	cttttaa			216

&lt;210&gt; 5146

&lt;211&gt; 240

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5146

gatatgaata	tagatacaga	gtttaatgta	ggtgatagtg	tatgctatct	aagtggagac	60
aatatctgtc	attccactat	aagcaaaatt	actattgaaa	tatcctatac	agatcgcagt	120
ttttctatgg	tatacaaaact	ttctgacgga	ttaagtgtgc	cgagaaacaa	ttatccacaa	180
tgggataaaa	aacttttttag	agacaaggat	gatcttataa	gatattttatc	agaatcataa	240

&lt;210&gt; 5147

&lt;211&gt; 450

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5147

ttaaaaagaa	ttttggagaa	gagcatgaaa	tcaacagaga	tattaaaacg	tattcaaadc	60
caacatttgt	tgacatcatc	agcgggtggat	tcccttgcca	ggacatcagc	gttgctggaa	120
aagggtgtcg	aattgtcggg	gaaagaagcg	gcttatggac	tgaaatgtat	cgagttatac	180
gggaagttag	acctaaatac	atcatcattg	aaaacagccc	aatgctcctt	attcggggat	240



ttgaacgagt	cctatgcaac	ctttccgaaa	tccgggtatga	tgcagaatgg	caatgtttat	300
caggcaccga	ctttggtata	caacaggggc	gggaacgggt	atattgtctt	gcctactcct	360
gtgaaatcaa	cagcaaacgg	agcatgcaag	aatcgatatt	tcggaagccc	tacgtcttca	420
ccacggggct	ggaaggacag	cgctgcgta				450

&lt;210&gt; 5148

&lt;211&gt; 219

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5148

taccgccaga	tccataagcg	gagatatgtt	tttcagaaaa	taaacttgtt	aaatttttaa	60
attacgatta	tgataaaaaa	aattatccgg	tatttgagaa	agcgcaaaga	tatgaaattg	120
cgcaaattgt	gcataacgct	ggcagcaaac	gaattatctc	gcggagaggc	tatcgatgcc	180
gccaacgaga	tctacaagtg	ggttaaagag	cagccttaa			219

&lt;210&gt; 5149

&lt;211&gt; 615

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5149

tcttataaga	tatttatcag	aatcataacc	aatttagaaa	tgaagcaaag	tgaactaacg	60
cacggttctc	tatttagtgg	catagagggg	ttcgggtctc	gtgcagcttt	ctcgggtata	120
agaactttat	ggagctgtga	gtatgaagac	tatcaaaca	gtataattaa	aaagaatttt	180
ggagaagagc	atgaaatcaa	cagagatatt	aaaacgtatt	caaatccaac	atttgttgac	240
atcatcagcg	gtggattccc	ttgccaggac	atcagcgttg	ctggaaaagg	tgtcgggaatt	300
gtcgggtgaaa	gaagcggctt	atggactgaa	atgtatcgag	ttatacggga	agttagacct	360
aaatacatca	tcattgaaaa	cagcccaatg	ctccttattc	ggggatttga	acgagtccta	420
tgcaaccttt	ccgaaatcgg	gtatgatgca	gaatggcaat	gtttatcagg	caccgacttt	480
ggtatacaac	agggtcggga	acgggtatat	tgtcttgctt	actcctgtga	aatcaacagc	540
aaacggagca	tgcaagaatc	gatatttcgg	aagccctacg	tcttcaccac	ggggctggaa	600
ggacagcgcg	tgcgt					615

&lt;210&gt; 5150

&lt;211&gt; 828

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5150

tacatttcac	tgtggaggca	cagaccttgc	cggagaagca	atTTTTccat	ccccgaccgg	60
gtgaaatatg	ataaagattg	ttttactatc	gaaggaaagg	atatttttat	actcagtgtc	120
gcgttccatt	acttccgttg	cccgcaggaa	ttgtggcggtg	accgcttccg	gaagataaaa	180
gaagccggat	tcaataactgt	ggaaacctat	gtccccctgga	attggcatga	acggaatatg	240
ccgaagagtg	tggacgacta	ttcgcaatgc	aattttgatg	atctgaaagc	atggctgcat	300
atggcacatg	aagagtccgg	attgtatacc	attgtccgtc	ccggtccttt	tatttgtgcc	360
gagtgggccc	gtggtgctta	tccgcgctgg	cttgccaaat	tttgcccggga	cagctatgat	420
accagtttct	ggcttcggag	caaccatcct	gagcacatga	aatggtcgga	gcattggtac	480
aatgctgttt	gccgggtatt	tagtgaggaa	caactcactc	gtaagcaacc	gggtgagaag	540
ggtatcataa	tggtacaatt	ggagaatgaa	tacattttact	ttgatatgga	gtccgagaaa	600
aaggaagaat	ttctgcgggt	actttcggat	gcttgcatcc	gaaatggcat	tgatgtccct	660
ctttttactt	gtgtgactcc	cgaagtgcgc	ggttctcatc	atccggtgat	cagccagctg	720
tttgacatga	ataatcaata	tgtatggtgg	aatatgcacg	aggctaaatc	gcgtatagag	780
aagttagaga	accgagtctt	cacctcgcga	tggagtacca	cgggggtc		828

&lt;210&gt; 5151

&lt;211&gt; 654

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5151

gagaaatttg	ttctcggatg	tataaagcgc	atctgggggt	atccccacat	tttgaaaaac	60
ggaatattat	atctccttat	acgaaagact	tgtcgtgccg	gtaaaaatca	tatttcgggt	120
acggcagacg	gactccgggg	gggcacacgg	ggaattgtaa	cccgagagata	cgacggggta	180
tttgtgcctg	aagggtatct	cgttccctat	tccggagatg	aagaagaggg	agttgttgta	240
aaggctactg	cttgggaaaa	cgtcactctg	acaaaaactc	cgttaaaagt	ggttcggggt	300
gaggctactt	cggaacagaa	acgctatgag	gcttctcata	ttacagatgg	agatgatttt	360
tcattgggtga	ttgctgatga	tgaatctcag	ccccagatag	ttctacttga	attggaacga	420
tctgtgaatg	tgtttgccag	tcggattcgt	tttcagaagg	atagttctac	ttatacccat	480
aaagtcgaaa	tttctatcga	cggaagaagt	tgggagactc	tatacgaacg	agaatgtacc	540
ggatgggatt	ttaagcctgt	gcagatcggg	aaggaaactga	aatatatgcg	ccttaccatt	600
gagaaaagct	cggagggagc	agccggattg	gctgaagtta	cattgtatca	ataa	654

&lt;210&gt; 5152

&lt;211&gt; 1089

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5152

aacccaaagc	ctatgaaact	caaacatata	cccttactcc	tgttggtact	gacctgctgt	60
ccggcttgct	aaaacaagaa	agcttctgcc	actaaagaga	ttccttccga	agctacttat	120
accaatccac	tattggcagt	aggagcagaa	ccatgggctg	tctttcacga	aggcaaatat	180
tattacacgc	aaggagccga	gaataaaaatt	atcctttggg	aaaccaatga	catcaccgac	240
ctggaacatg	ctgcccgga	agaagtatgg	attccaaaag	aaatctccaa	ctcttatcac	300
ctctggggag	cggagataca	ccgattgac	gggaaatggg	atgtttattt	cgcagcagat	360
gacggcaaca	tggacaatca	ccacatctat	gtcatagaaa	acagttctcc	caaccggttg	420
gaaggtgaat	ttgtgatgaa	aggacgaatt	aaaactgaca	aagacgataa	ttgggcaatc	480
catgccagta	cattcgagca	tcagggtcaa	cgttatctca	tttggtgtgg	atggcctaag	540
cgccggattg	aaacagaaac	tcaatgtatc	tatattgcca	ggatggaaaa	tccgtggaca	600
ctctcgctcg	acagggtgat	gattgcggaa	ccggaatatg	aatgggaacg	tcaatggatc	660
tcacctgatg	gcagtaaaac	agcttaccca	atccacgtca	acgagtcccc	acaattcttt	720
gaatcgaaga	acaaggacaa	agtgtctgata	tactactgtg	ccagtgggaag	ctggactccc	780
tactattgca	tcggactgct	gactgtctgat	gccggcagtg	acctgaccaa	tgcggcatcc	840
tgggaagaaac	aggatactcc	tgtctttgag	cagcaacccg	aagacagtgt	tttcggaccg	900
ggtagtccct	cttttgtccc	tacaccggat	gaaaaggaat	ggtacatgct	ttatcatgcc	960
cgaaaaatcc	ccaacgatgc	accgggagca	acagactccc	gtagtccccg	tctgcaaaaa	1020
ataagctggg	atgcaaacgg	gatgcctgtt	ttgggaaaaac	cttgcaaaaga	aggaacgcaa	1080
attaaatag						1089

&lt;210&gt; 5153

&lt;211&gt; 618

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5153

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&lt;210&gt; 5154

<400> 5154

<210> 5155

<211> 3153

<400> 5155

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&lt;210&gt; 5156

&lt;211&gt; 906

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5156

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&lt;210&gt; 5157

&lt;211&gt; 1950

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5157

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&lt;210&gt; 5158

&lt;211&gt; 651

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5158

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&lt;210&gt; 5159

&lt;211&gt; 552

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5159

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552

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&lt;210&gt; 5163

&lt;211&gt; 282

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5163

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&lt;210&gt; 5164

&lt;211&gt; 396

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5164

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&lt;210&gt; 5165

&lt;211&gt; 765

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5165

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gaactgtgta	acaaagggtg	aaagacctta	ttctggtcat	ctaatttcag	tttgggagta	360
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gacgtaacca	tgagcgaaac	ccaccacgta	cacaagctcg	atgcaccaag	cggacacagc	480
atcacactgg	cagaaggaat	ccttgaaaat	atggaacgca	aaagcgtctg	ggtaaaagag	540
gaagcacatg	caaccaatga	attgccgatc	cactctattc	gcgaaggaga	agtattcggg	600
atccatacca	tccgctatga	ctccgaagca	gacagtatct	ccatcaccca	cgatgccaaa	660
aaccggggag	gtttcgcatt	gggagccgta	ttggcggcag	agtatacagc	agcccatgaa	720
ggctatctgg	gtatgagtga	tttattccca	ttcttaaaag	atttaa		765

&lt;210&gt; 5166

&lt;211&gt; 975

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5166

agaatactcc	aaacgccatc	acggtgggta	cttggggcgaa	aaatcaagaa	aactatgcgt	60
aaagtaatcg	gcatcggaga	gactatactc	gatatactct	tccgaaacga	ccagccttcg	120
gcagccgttc	cggagggtc	tgtattcaac	ggcatcggtt	ctttgggacg	catgggagtc	180
aatgtatgct	tcatcagtga	aacagggaat	gaccatgtag	gaaacatcat	tctgcaattc	240
atgcgtgaca	atcacatccc	gacggatcac	gtcaacgtgt	ttccggacgg	caaatcgccc	300
gtatccctgg	ctttcctcaa	cgaacacagc	gatgcagaat	atatcttcta	taaagactac	360
ccaaaacagc	ggctggacgt	tttattcccg	tccatcaatg	aagacgacat	cattgtcatc	420
ggttcatatt	atgctctcaa	tccggtattg	cgtgataaga	tattggaact	gctggacata	480
gcaaaagaaa	aaagagcgat	tgtatactac	gatcccaatt	tccgatactc	acacaagaat	540
gaagcgatga	aactgggtcc	gaccattatc	gagaacctgg	aatatgccga	cattgtaaga	600
ggctctttgg	aagacttcta	ttatatgtac	ggaatcaaag	acgtagaaaa	aatctacaag	660
gacaagataa	agttctattg	tccgctcttc	ctttgcacag	ccggagccga	aagaatctca	720
ctgcgtacga	acgcaatatc	caaagagtat	cctgtcgcgc	cattagaggc	agtcagcact	780
atcgggtgcag	gagacaattt	taatgccggg	ctgatctacg	gcatgctaaa	gtacgacgtc	840
cggtagcgtg	acttgcaaca	cctgagtga	gagacctggg	ataaagtgat	acaatgccga	900
caagactttg	cagccgaagt	ctgcaaaagt	ttcaacaact	ccatatccgg	ggagtttgcg	960
gccaaactacc	gttga					975

&lt;210&gt; 5167

&lt;211&gt; 186

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5167

ttcataagtc	tgtttttatt	tgaggttggg	ttaatcagtc	agtgtgtctg	ttctgtctct	60
tcccttttca	gatagtgtg	ggatcagaag	ttagactttc	tttacctgc	aaaggcattg	120
aatcctccat	ccactaccgc	cactgtacct	gttacaaagc	ttgctgcgtc	gctgatgagg	180
tattga						186

&lt;210&gt; 5168

&lt;211&gt; 1236

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5168

caaataacac	aaaaaatgaa	gaagcatctg	attttatctg	cttgccctgat	aatggcaata	60
agcagttttg	ctcaaaaaaa	ggactttagt	tataagtttt	acggacagat	tgcacagac	120
ctttattaca	acagtcgtgc	caacgaagag	acagtagacg	gattgtttta	catgtacccc	180
aaagacgaag	tattcgatag	caatggcaga	gatttaaatt	caactgccaa	cggtagcttt	240
tacaccctat	ataccgcct	gggattggat	gtaaagggac	ctaaactggg	acgcgccatg	300
acttccgcca	aagtgggaag	agacttccgc	ggttcaggta	cttcttactc	tactatacgc	360
ttgcgtcacg	cttacctgaa	cctggattgg	ggacgttcgg	ctcttttgct	cggacaaacc	420
tggcatccgc	tcttcggtga	cgtatcacct	cagatcctga	atctttcggg	cggagcacct	480
ttccaaccgt	tcagccgtgc	tccgcaaat	cgttaccgct	atacacacaa	agggttccaa	540
ctgacgggag	cagctatctg	gcaatcacag	tatctgtcac	aaggatttgt	cggtaaaagt	600
cagacttata	taaagaacag	ttgtgttcct	gagttctatc	tgggactcga	ctataaagcc	660
aatggatgga	tagccggagc	aggaatcgaa	ctgctctctc	tgaagcctcg	tacagagtct	720
aaagtagagg	accaagtcta	taaagtgaac	gagcgcatca	ccacctgtc	ttacgaaggt	780
catgtgaagt	atagcaataa	agattgggtt	gtaggtgcta	aaaccgtatt	aggctccaac	840
ctgacacaaa	cctccatgct	gggaggattc	ggaatcaaat	ccatcgataa	tcggaccgga	900
gaacaaaagt	atacaccgat	ccgggtatcc	agttcatggc	tgaacgtagt	atacggacag	960
aatggaaac	cgggtatctt	cctgggatat	gtcaagaata	tgggaacaag	cgatgccctg	1020
gcatccaatc	aagtatacgg	aacaggaacc	aatgtggacc	aagtggtgac	agccgggtgt	1080
gaactgacct	ataatgtcaa	ccactggaag	tttggagtgg	aatataccta	tacttccgcc	1140
gcttatggct	cactgtatct	taaaaacggg	aaaatcatcg	atacacacta	cgttggtaac	1200
aaccgcatcg	taggtgtagc	catgtttatg	ttctaa			1236

&lt;210&gt; 5169

&lt;211&gt; 1587



&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5169

ctcaaaaagc	agaatatgaa	attagataga	tttattaatc	gtccggtact	atcaacggtt	60
atctccatcg	tgatagtgat	tctgggtgtg	ttaggcctgc	tgtcgtgccc	tatctcccag	120
tatccggata	ttgccccctc	tactgtacgt	gtcaacacga	cgtatcaggg	agccaatgca	180
caaactgtat	taaacagtg	gattgtctcg	ttggaggagc	agatcaacgg	tgtagaaaac	240
atgatgtaca	tgactttctac	tgccaccaat	accggagagg	cctctatcga	ggtttacttt	300
aaacagggta	cggaccggga	tatggctgcc	gtaaacgtac	agaaccgtgt	agccaaagca	360
caggggtctgt	tgccggccga	agtaaccaag	gtaggtgtga	ttacctcaaa	acgacaaacc	420
agtatgttgc	tggtattctc	cctgtatagt	tcggatgaca	aatatgataa	cgaattcctt	480
gagaactatg	ctaaaatcaa	tctcgtaccg	gaagttcaac	gtgtaccggg	tgtaggtgac	540
gccatggtgc	tcgggtgcaga	ctattctatg	cgtatctggt	tgaaaccgga	cgtaatggcc	600
caatatcacc	tgatgcctac	cgatgtttcg	gcagcattgg	ccgaacagaa	tatcgaggct	660
gctccgggtt	cattcgggtga	acagggcaaa	cagactttcc	aatatacgct	gcgtttataaa	720
ggacgtctgc	agagccagga	agagtttgag	aacatcgtga	tccgtgccaa	ttctgacggg	780
caggtgctcc	gggtgaaaga	tattgccaca	atcgagttag	gtcgtctgac	atacggattc	840
tctaacaacg	taaacgggtca	ccctgccgta	acggttatcg	tattccagac	agccggttcg	900
aatgcgactg	ccatcatcaa	tgacatcctc	gacttgcttg	aaaaatcaga	atcgactttc	960
ccgccgggag	ttaaagtaaa	tatctcacia	aatgccaacg	acttcttggt	tgcttctatc	1020
cacgaagttg	taaagacttt	gattgaagcc	tttatcctgg	tatttatcgt	ggtttacatt	1080
ttcttgcagg	atctacgctc	gacactgatt	ccggccatcg	cgatcccggg	agcattgatc	1140
ggtacattct	ttgtgcttta	catcatcgga	ttcagtatca	acttgcttac	cctctgtgcc	1200
atggtactcg	ccattgccat	agtgggtggac	gatgccatcg	tcgtcgtcga	gggtgtccat	1260
gccaagctcg	accaaggcta	taaatcagct	cggttagctt	ccatcgacgc	catgaacgaa	1320
ttgggtggcg	ctatcgtctc	cattacattg	gttatgatgt	ccgtgtttat	tccggttaagc	1380
tttatgaccg	gtacttccgg	tacattctac	cgctcagttg	gtctgactat	ggctattgct	1440
attgccttgt	cggcagtaaa	tgctttgaca	ctgagccctg	cattgtgcgc	catcttactg	1500
aaacccccacg	atcctgatgc	taaaaagaaa	tcgattttgg	caaccgtttc	catgcttcgt	1560
tcaatgctgc	ttatgacca	gtattga				1587

&lt;210&gt; 5170

&lt;211&gt; 855

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5170

cgaagccaca	agacaagaag	tctaaccttt	aaaagcaata	gtatggcaaa	cttatttagt	60
gtaaaggaca	aagtagtagt	cattaccggt	ggaacgggag	tattaggaaa	agcaattgca	120
gccacactgg	cagaagaagg	tgccaaagtc	attctcctcg	gacgtaaaaa	cgaagtgggt	180
aataagattg	tagaatcaat	tcgtacccaa	ggaggtgaag	cgctgtttct	gacaaccgat	240
gtactcgacc	ggaagatact	tgaacagaa	ctggcggata	tactgaaagc	ttatgggcgg	300
atagatgcat	tactcaatgc	ggcaggaggc	aatatgccgg	gagctacgat	ctcacctaca	360
ggcgatatct	ttgacctgaa	aatagatgaa	ttccagaaag	tattggatct	gaacctgacc	420
ggtacgatac	tgccgacaca	agtattcctg	aaacccatgg	tggagcaaa	agcgggcgct	480
atcgtcaatt	tctcatccat	ggctgctttc	cgccttttga	cgcgtgtggc	cggctatgcc	540
gctgccaaag	ccgggatctc	caatttcacc	gcatttatgg	ccacggagat	tgccaaaaag	600
tttggtgaag	gaatccgtat	aaatgccatc	gccccgggat	tcttcctgac	agaacagaat	660
cgtgcactac	taaccaatcc	ggacggcacc	tatacacaac	ggggacaaga	cgtaatccgt	720
caaacgccat	tcgggcgtat	gggacgtgcc	gaagagttat	gcggaacaat	tcaatacctc	780
atcagcgacg	cagcaagctt	tgtaacgggt	acagtgccgg	tagtggatgg	aggattcaat	840
gcctttgcga	tgtaa					855

&lt;210&gt; 5171

&lt;211&gt; 1185

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5171

acatcattaa	aaattgaata	taaagaaggt	atgaaaagta	aaattgtttt	gtttgcattt	60
tgtttagcct	tgttgtcggg	ttgcggcaaa	aagggcttca	acatgggagg	aactcccgaa	120
tggtcagtag	agacattgca	gcccaccact	gtcaatctga	aaagctccta	tccggccaca	180
atcaagggtg	aacaggatat	cgaaatccgc	ccgcaggttt	ccgggtttat	cactaaactg	240
aatattgatg	aaggatctat	ggtcaaaaaa	ggacagggtac	tgttcgatcat	cgatccgggtg	300
cagtatgaat	ctgccgcccg	tgcagcaaaa	gccgctgtag	ccacagctaa	agcgaatgtt	360
tctactcagg	aaatcactgt	aaaaaaciaa	cgtgaattaa	acaagaaaaa	catcatcagc	420
gactatgac	tggaaatggc	tgaaaataca	cttgcatctg	caaaagctca	attggcatct	480
gccgaagccc	agctgatcag	cgtaaccag	aatctggcat	acacacgcgt	aacaagccct	540
tccgacgggtg	tagccggaac	aatcccttac	cgtgtaggta	gcttggttaag	cgcttcaagt	600
ccgtcacctc	tactgtgat	ctcggacatc	actcagatgt	acgtttactt	ttcactgaca	660
gaaaaggaat	tactgaacct	gatccgtcag	gacggttctc	aaactgaatt	tctgaatagc	720
ttcccggtctg	ttcaactgac	attggctgac	ggaacgttgt	atgccgatag	cggtaaaata	780
gagacggtaa	gcggagtcac	cgacccaaac	acaggtgctg	taagcatgcg	tgccactttc	840
ccgaatcacg	gacatctgtt	gagaacaggc	ggtaccggta	acatccagat	tccttatagc	900
aaggagaatg	taatcgttat	ccctcaaaaa	gcaacttacg	aaatacagga	taagaaattc	960
gtatatctgc	tccagccgga	taacactgtg	aaaaataccg	aaatagaaat	attaaatctc	1020
aacgacggac	aaaactatgt	agtcactgca	ggactgaaag	ccggagacaa	aatcggtgtc	1080
gaaaacgtca	gcaccctgaa	agacgggtgt	actatcaagc	cgctcaccca	gcaggaatcg	1140
gccgaacgct	ttaaagcagc	tttggaaaga	cgcaaaaatc	agtaa		1185

&lt;210&gt; 5172

&lt;211&gt; 939

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5172

tcaatgggaa	agggaactcaa	atggattata	gcttttgccg	gagcaatggt	catcgtagctg	60
ttgctccgcg	gcttttgcttt	tacctcatgc	ctgatacctt	cggcgggtat	ggagaattcc	120
ctttttcagg	gtgaacgtat	tctggtaaat	aaatggagct	acggacttcg	tgtaccttat	180
atgtcattat	tctctacca	ccgctgggga	gaaagtcca	tacataaaga	cgacatcgtc	240
gtattcaata	accctgcggg	tatcaaagaa	cccattatag	accgaagaga	gatttatata	300
agccgatgca	tccggtgtacc	gggggatacg	ttacttatcg	attcactctt	caacgtgggtc	360
gaccgtagca	cacaactcgg	accggaccgg	aaacaactat	atacgtatcc	gcaaaccaag	420
gaacagcaac	tggattcatt	gcttttctatt	cttttctattg	gccctaataga	actgatggga	480
caacacgaag	gaaaaaatgt	acggagcttc	agccgctatg	agtattatgt	gctcgatcag	540
gctatgaacg	ggaaaagctg	gatacagcct	ttacaacaaa	gcttacagga	agaagctaaa	600
ccactcatcg	ttccgggtaa	aggaaaagca	gtccgggtat	atccgtggaa	ccggacattg	660
ttacgaaaca	cgctgggtact	gcatgagggg	aaacaggcgg	agatccgaaa	cgatacgctc	720
tacatcgaag	gacgttccttc	acaacattgt	tatttcacca	aagattatta	ctggatggct	780
tccaataatt	ccgtaaatct	ttccgattcc	cgctgttcg	gtttcgtagc	gcaggaatcg	840
gtcattggaa	aagcttcacg	aatctgggtc	tcaaaaacag	accatacggg	aatcttttagc	900
ggataccgct	gggaacgatt	cttccaaccg	gtaaaatag			939

&lt;210&gt; 5173

&lt;211&gt; 1476

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1014)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5173

aacctattga	atgggaagac	atcgataata	cggtatgcaga	aacagaaatt	gaacaatagc	60
ctaaatagga	ataaagaaaa	gaatatgaag	aaacaaaatta	taggtatgtt	gtgtgcaact	120
gctctcttga	gcagctgccca	catctacaaa	tcatatgaca	gacctaaaga	tattgaagcc	180

tccggtcttt	accggggacac	agtatctgtt	gccgatacac	tggtatccga	tactgtcaac	240
ttcggaaatc	tgccttggag	agaggtcttc	accgatcctc	aactgcaagc	gttaatcgaa	300
cagggattaa	cccacaatac	agatctgctg	actgctgctg	tgaaagtga	agaggcacag	360
gcatcactga	tgtcagcccg	tctggcctac	gctccttcac	tggattgtc	accacaagga	420
accatcagca	gctttgataa	gcatgccgca	acaaaaacct	attcgttgcc	ggcaacagcc	480
agctgggaga	togatctatt	cggcaagttg	ctgaatgcca	aacgcggtgc	acaagtaaca	540
ttgttgcaaa	ccaaagcata	tcgtcaggct	gtacagactc	agatcatttc	gggcattgcc	600
aatacctatt	acaccttatt	gatgctcgac	cgtcagctcg	atattaccga	acagactgcc	660
gacatcatga	agcgtaaatgt	tgaaacctag	caggcaatga	aagatgcggc	tatgttcaac	720
actacctctg	caggggtgga	acaaagcaag	gctgcctatg	cacaagtact	ggcgtctatt	780
ccggctatcc	aaaagagtat	ccgtgaagct	gagaacgcta	tgtccatgct	attggcaca	840
gcaccacaga	ctatcaaacg	gggggttctg	gaagagcagc	aattacctga	agatttctca	900
gtgggcgttc	ctttgcaact	actctctaac	cgtccggatg	tgaaagcagc	cgaaatggca	960
ttggccggtg	cttactacaa	tgcaaattcg	acccgtgccg	ccttctatcc	gcanatcact	1020
atcagcggct	cggccgggtg	gaccaatagc	gccggtagtg	ccattatcaa	tcctggtaaa	1080
ctgcttgcc	ctgtacttgg	ttcgcttacc	cagcctctct	tctaccgtgg	tgcaaacatt	1140
gcccgcctga	agatagccaa	ggcacaacag	gaagaggcta	aactggcctt	ccagcagagt	1200
ttgttgaatg	ccggaagtga	agtaagcaat	gcattgtatc	aatatcagag	tgcttctgaa	1260
aaaactgctt	cccgcgaatt	acaggtagaa	tcttcagaaa	aagcatccga	atatacaaaa	1320
gaattgttta	aattagggac	gtctacttat	ctggaggtat	tgtcggccga	acagtctttg	1380
ctcagtcccc	gtttatctca	ggtaaacgac	accttcgacc	ggatgcaggc	tgtagtgagc	1440
ctctatcagg	cattggggcg	cggaagagaa	gattaa			1476

&lt;210&gt; 5174

&lt;211&gt; 939

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5174

aaacagatga	atacattacc	tatccacctc	gctccgctgc	aaggttatac	cgaagcagcc	60
tatcgcaatg	cccatgccgc	cgttttcggc	ggtgtggatg	tctatcatac	tcctttcgta	120
cgaatagatc	ggggagaatt	ccgccataag	gatgtacggg	atattcttcc	cgaaaacaac	180
cgggttcctc	acctcattcc	acaacttata	gcctccgaga	tggacaaaac	agagcgaata	240
atcgcccttt	tcatcgaaca	aggctatcgg	gagatggaca	ttaacctcgg	ttgccctttc	300
ccgatgttgg	caaaacggca	atgtggatcg	ggcatgctgc	cccaccctga	taaagtggaa	360
acattactca	aacagatcga	acagtatccc	gatgtgagct	tctcagtaaa	aatgcgcctg	420
ggatgggaaa	agccggatga	atgtttgacc	ctgttgccctc	tattgaatgc	ggctccgctg	480
accgagatta	tcgttcaccc	ccgcttaggt	atccagcaat	acaaaggaga	agtaaatatg	540
gagggattta	cagctttcta	cgaagcatgc	agacatcctg	ttatctacaa	cggagacatc	600
ctgaccatag	aagatatccg	gtgcatcacc	gaaaagtttc	cgaaacttac	cggagtgatg	660
atcggcccg	gattattggc	aaaccctgca	ttgggttggg	aataataaaga	aggcaagaaa	720
cttacgcctg	aagaatggag	agaaaagtgt	agagcactgc	acacagccgt	tttccaacac	780
tacgagacac	agatacaagg	tggcgaagca	caactgggtga	ctaagatgaa	aacgttctgg	840
gagtatctgg	ccccacaaat	agaccgaaag	agctggaaag	ctatccataa	aagcactacg	900
cttgccaaat	acaacattgc	cgtccgttcg	gcattttga			939

&lt;210&gt; 5175

&lt;211&gt; 1695

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1417)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5175

aaagaaatcg	atthttggcaa	ccgtttccat	gcttcgttca	atgctgctta	tgaccagta	60
ttgaagaaat	ataaaaaacg	tgttctcttc	ttcatccaga	aaccggtgct	gaccatcggc	120

tccgtagtag	tgggtttcgc	actgctcatc	ttcctgatga	aagtgactcc	gaccggtttg	180
gtaccgaatg	aagatacagg	aacgattatg	gcagtagtcg	atatgcctcc	cggaagctca	240
ctggaacgca	ctcaggaagt	gatgtggcag	gtagatagcc	tactggcctc	cgacccggct	300
atcgaaagcc	gtaccatgat	cgccggttat	agctttatcg	ccggtcaggg	tcccagctac	360
ggttcattta	tctgtaaaat	gaagaactgg	gatgagcgtt	ccatcgctca	acgttctgac	420
ttcgtttcag	gtatgctgta	tctgaaagcc	cgtgaagtga	ttaaagacgc	ccgcgtactg	480
ttattcgctc	cccctatgat	tccgggttac	agtgtatcca	acggtttcga	aatgaactta	540
caggataaga	caggcggtag	tctggataaa	ttctatgaag	tagctcagga	ctttatcacc	600
aagctacagg	cacgccccga	aattcagtcg	gcacagactt	cgttcaaccc	gaacttcccc	660
cagtacatga	tcgatatcga	tgccgctgct	tgtagaagag	ccggattatc	tccgagcgac	720
atccttacta	ccctgcaagg	atattacggg	ggctctatatt	cgtccaactt	caaccggttc	780
ggtaagatgt	accgtgtaat	gattcagggc	gatccgaaca	gccgtaccaa	tctggagtca	840
ctgaactcgg	ttaaagtacg	caacggcaac	gagatggctc	ctatcactca	gtttatgagc	900
gttaaagcta	tttacggacc	ggacaacatc	aagcgtttca	acatgtttac	ggcgatgact	960
atcaatgggt	cgccggctga	cggatacagt	tccggtcagg	ccatccaagc	catgcaggaa	1020
gtggcagaac	agacgttgcc	taccggatac	ggatatgaat	tctcgggtat	gaccctgtaa	1080
gaacaaagtt	cgagcggcag	tactactgcg	atgatcttcg	tcctctgctt	cgtatttggt	1140
tatctgttgc	tgagtgcaca	atacgaaagt	tatatctctc	cgtttgccgt	actgctttct	1200
ataccgttcg	gtctggcagg	tagcttcatt	ttcgcccacc	tgatgggatt	ggcaaacaat	1260
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&lt;210&gt; 5176

&lt;211&gt; 627

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5176

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&lt;210&gt; 5177

&lt;211&gt; 516

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5177

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 <212> DNA  
 <213> B.fragilis

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<211> 1353  
<212> DNA  
<213> B.fragilis

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<212> DNA  
<213> B.fragilis

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acaattttac ttttcatacc ttctttatat tcaattttta atgatgttca ttttgtggca 180  
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<210> 5181  
<211> 828  
<212> DNA  
<213> B.fragilis

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cgttttgcct acattgaaga taatgtcgaa ataggggacg actgtatcat tatgccctat 180  
gccagtgtgc tgaatggtac acggctggga aaaggtaaca aagtatatca acatgccgta 240  
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&lt;210&gt; 5182

&lt;211&gt; 1302

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5182

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&lt;210&gt; 5183

&lt;211&gt; 1497

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5183

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&lt;210&gt; 5184

&lt;211&gt; 339

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5184

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&lt;210&gt; 5185

&lt;211&gt; 1116

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5185

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&lt;210&gt; 5186

&lt;211&gt; 645

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5186

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ggcgacgaac	tgcaaaactcc	gcatttcctc	tcattggaatc	cgatcaaaat	agaaaagccg	600
gattttcacc	gtcccgactt	cttcgggtacg	ttggaatttg	aatag		645

&lt;210&gt; 5187

&lt;211&gt; 1454

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1400), (1421), (1422), (1427), (1441), (1442), (1447), (1449)

&lt;223&gt; Identity of nucleotide sequences at the above locations are unknown.

&lt;400&gt; 5187

tgcgatatctt	tgcacccgaa	aataaagata	tacagagatt	taatgaagac	atttgaagag	60
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ccggtacagg	aggaagtgat	tccataccta	ttaggagaga	ataatgatgt	agtagctctt	180
gcacagacag	ggacgggtaa	gaccgcagcg	tttggcttgc	ccctcatcca	gaaaattaac	240
gtaaaaaaca	gaataacctca	atcactcggt	ctttgccccca	cacgcgagct	ttgcctccag	300
atagcaggcg	acctgaacga	ctattccaaa	tacatcgacg	ggctgaaagt	attgcccgtg	360
tacggcggtt	catccatcga	cagccagata	cgcagcctga	aacggggtgt	gcataatcatt	420
gttgccacac	cagggcgact	cctcgacctg	atggaacgca	aaacgggtatc	tcttgccact	480
gtcacaaaacg	tagtgatgga	cgaagcggac	gaaatgctca	atatgggctt	tacggacagt	540
atcaatgccca	tcctggcgaga	tgttccgcaa	gaacgtaaca	caactgctttt	ctcggccact	600
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atcgagcgca	agaacgaaag	tacgagcaac	gtgaagcatg	tggtctatac	cgatcatgca	720
aaagataaat	acgccgctct	gaaacgcac	gtagactatt	atccgcagat	ttacgggtatc	780
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aagttccgca	tccgcaacat	ccagatcctg	gtagccaccg	atgtagccgc	acgcggactg	960
gacgtagacg	acctgacaca	cgatcatcaac	tacggattgc	cggacgatac	ggaaagttat	1020
acgcaccgta	gcggaacgtac	aggacgtgcc	ggaaagacag	gtacatccat	cgccatcatc	1080
aatttgctgtg	aaaaaggaaa	gatgcgcgaa	atagaacgca	tcattcggtaa	gaaattcatt	1140
gccggtgaaa	tgcttaccgg	taagcagatc	tgcgagaaac	agcttctcaa	agtgatagac	1200
gatcttgaaa	aagtaaaggt	aaacgaggag	gatatcaatg	atttcatgcc	tgagattttac	1260
cgtaaaactgg	agtggctgag	taaagaagac	ctcatcaagc	gcattggtatc	gcattgagttc	1320
aaccggtttg	tcgactatta	tcgcaaccgc	gaagaaatag	aggtgcccgc	cgatagccgc	1380
aggtcttcac	cacgggggtn	aatgccaaacg	ctattcagtt	nnttcnaac	gctgtctatt	1440
nntcctnanc	cgct					1454

&lt;210&gt; 5188

&lt;211&gt; 432

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5188

caaagggggcc	cgttttatatt	ttactcaccc	tttgaaacag	gaggaaaacc	gatgaagaga	60
ctggttggtt	tattgttttg	tttggctcgt	gccgccttgt	ttatgtcagc	tgccaatttcg	120
ggtgatcgtg	tactgcgtga	cagtatcttt	catgtctatc	ggtcgatgcc	tgccgacacc	180
actcggaccg	tttttgcgaa	agaggctgca	atgggacacg	ttaaagaaaag	ctgggcgttg	240
gagttactgg	attcggcatt	ggtgtttgcc	cgggagataa	aagatgtgga	gggtgagttg	300
gaactccaat	acgggatttt	tcgttactat	acgttcagga	tggacgggtga	gaatatggaa	360
aagacgtgtg	ccaccctgag	ggaagcgtgt	tatcgttatg	tcttcaccac	ggggctggaa	420
ggggccgctc	ta					432

&lt;210&gt; 5189

<211> 1128  
 <212> DNA  
 <213> B.fragilis

<400> 5189  
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 ttcgttgtat gtggattgtc cgtatccctt gcttctgaaa agtgggctgt ggatagcata 120  
 aactggcatc gtgcagagca gaaaatgcaa gagaaggatt ttcaggatgc agcactgaca 180  
 tataaggaat tgattacgaa aggagattct ttgtttgtgg attatgcccg ccggcatgtt 240  
 gaggatatgc gtgaacaata ttccattgac gagttggact tacaaaacgg aatgcagcag 300  
 aagaaaatat ggaaatttgt gtttatcacc attctatgtc tggccgtttt gttattcgta 360  
 ggacttctct atttgaggag agcggagaga aaacttctat ttccagaga agagttgcaa 420  
 aaggcaaaaa ggctggccga agagtctgtc cgtaataaga gcgtatttct ttccaatatg 480  
 agccatgaga taaaaactcc cttaaatgag ttggcagggt tctctgaaat tttgattact 540  
 ccgggaattg acgatgaagt tcgtgcgcag tgtaatgacg tgatcagggt aaactccgat 600  
 ttattgttgc atttggtaaa tgacgtagtc gatgtttcgt gtctggatgt ggcaaatatg 660  
 agattctccg tggttccgca tgaggtgtgt gctttatgcc ggaatgttgt ggagatgctg 720  
 agaaatatca aacagacttc tgcggagatg atttttgaga cagaattgtc tgctttggaa 780  
 atggaaactg atccgtgcag gctccagcaa gtattgatca acctactggt caatgccaca 840  
 aaattttacga aggagggata tatcacattg acactgcgga taaatgaagc cggggtagct 900  
 gagtttatgg taacggatac cgggtgtgga attccccttg aaaatcaaga ggctgtattc 960  
 agtcggttcg aaaaactcaa tgaaggcatc cagggtacag ggctggggct gtctatctgt 1020  
 aagctgatca ttaatcgtat gggaggagac atccgggttg actccactta tagcaaaggg 1080  
 gcccgtttta tttttactca ccctttgaaa caggaggaaa accgatga 1128

<210> 5190  
 <211> 375  
 <212> DNA  
 <213> B.fragilis

<220>  
 <221> unsure  
 <222> (137)  
 <223> Identity of nucleotide sequences at the above locations are unknown.

<400> 5190  
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 accggtattt acgaagctat cgagaaagcg gtagttgccg tagacgcgtg tgtgaaagat 120  
 accattgaag cagccanagc tcaaggttac gaagctatca tcattgccga tcatggtaac 180  
 gctgaccatg ctttgaatga agacgggtacc ccgaatacgg ctactcttt gaatcctgta 240  
 ccttgtgtat acgtgacaga gaataaagaa gcgaaagtgg cagacggacg tttggcagat 300  
 gtggcgccta ccatacctgca tattttggat atggttcaac cggctgagat gacaggttgc 360  
 aatttgatta aataa 375

<210> 5191  
 <211> 561  
 <212> DNA  
 <213> B.fragilis

<400> 5191  
 aacaaattat caaatcccat gcataccacc attttagaaa ccgaacgtct ccttcttcgt 60  
 cctttccggg aaacggatct gcaagagctc tttgaatgtt gccaaaaccc aaacttagga 120  
 aataacgccg gctgggaacc acataaaaa atcgaagatt ccaaagagggt cttacatact 180  
 gtatttatgg gaaatgaagg agtttttgcc ataattctca aagaagataa ttcactgggtg 240  
 ggttctatcg gtattattac tgaccccaaa cgggaaaata cccggacacg tatgctggga 300  
 tactggctga aagagtgccca ttggggaaaa ggtatggcct cggaagcgac acgaaccata 360  
 ttggattatg gatttaacgt actgggattg catttgattt cagcgaactg ttatccgcat 420  
 aacaccggtt cccgactttt attggaacgg aacggatttg tatacgaagg tatactccat 480  
 gaagcagaaa tgacttatga cggacatgta tacgaccatt tatgctttta tcagaaaaaa 540

ggaagagtgc ccatggacta a

561

&lt;210&gt; 5192

&lt;211&gt; 198

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5192

cacagggttc	cacaaagtga	acttaatcta	ttgataacta	acgatgctga	tctgtggcgt	60
atccgggttt	tgacacatcc	tcatttggtg	tactcgctct	atttatttaa	aaaacgaaag	120
aaaatccatc	ctgtaacatt	ggttacaaat	tatttgatc	tcatttccga	cctttgcca	180
ctgaataata	aaagatga					198

&lt;210&gt; 5193

&lt;211&gt; 348

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5193

aatgaaaaaa	caaataagaa	tatggaacag	tcattcaaaa	agggaattgt	actccatcta	60
gcctcattag	tagaatattc	tgaagggtga	attatcagta	agcagttaat	caaaagccct	120
gccggaaaca	ttactttatt	ctcattcgac	aaaggcgaag	gacttagcga	acacagtgct	180
ccattcgatg	cttttagtaca	ggtattggaa	ggatctgcga	atattgttgt	aaatggacaa	240
gtttttacgg	taaatgcagg	agaaagtatt	gtatttccgg	ctaagcgcc	gcatgcattg	300
acagctattg	aaagatttaa	aatgttactg	acaatgatta	aagagtag		348

&lt;210&gt; 5194

&lt;211&gt; 1215

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5194

tctaacagag	cgacaatgaa	ctcaaaaaaa	gtacttttca	tcattctcat	ttgtacattg	60
actgtgaccg	gatgcgatac	acaagaacaa	actactatag	atagtggctt	aactctgata	120
cgggctacac	aaacacttga	ttctttatat	gcaaattatt	ctgtatcagg	aacctgtctg	180
ttaatagaga	attatccttc	taatgtagga	aattacacag	ccacgtatct	ggcttctgaa	240
gaacaaaaag	aaatcccca	tcaatattct	tacttatggc	cttattccgg	gacattttct	300
gctgtaaatg	cactatgggc	agcaaccggg	gatgagagct	ataagacatt	actcgataac	360
aaggatttgc	ggggacttga	aaaatattta	gatatcagca	gaagccctgc	cggttatgcc	420
tcgtacataa	acacggcttc	ccaatccgac	cgcttctacg	atgataatat	ctgggtgggt	480
attgacttca	cagatgctta	tctaaatata	aaagaagaaa	aatacctgaa	gaaagcccag	540
cttatctggg	aatttataga	gagtggagca	gatgacaaat	taggcggagg	tatctattgg	600
tgtgagcaaa	agaaagtatc	taaaaatata	tggttctaacg	caccggcatc	agtgttcgca	660
ttaaaaatgt	tcaaagctat	ccgagatagt	tcttacctga	taaaagggca	ggaactatat	720
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ttggatggga	aaattgataa	gtctaaatat	gcctacaata	gtgggcaaat	gatgcaggct	840
gccactttat	tatatcaact	taccggttgt	agccattttt	tgaaggatgc	tcaaaatata	900
gcaaaagcgt	gttataacta	tttttttata	aatttttatac	ctgaagaagg	ggaacctttc	960
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gcatgggaac	atgtgcgtga	tgagaaggga	cttttctgata	tcgatttcag	tggaagaacc	1140
catgatgacc	gcaagtggct	gttaacgcaa	gctgctatgg	tagagatgta	tgctcggtta	1200
gcagtaacta	aataa					1215

&lt;210&gt; 5195

&lt;211&gt; 933

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5195

tatgacatgg	caaaaataca	aattaaatct	gagaaactca	caccttttgg	aggaattttt	60
tcaatcatgg	agaaatttga	ctccatgctt	tcacccgtta	tcgactcaac	actgggtcag	120
agatgcagca	gtatcttcgg	atatcagttc	agcgagatag	tccgttcgct	gatgagcggt	180
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tatcatccta	cccttcgtac	atgcagctct	gataccatcc	tcagagccat	caagggaactg	300
acacaggaaa	acatctccta	tacttccgac	caaggcaaga	cctatgattt	caatactgca	360
gacaaactca	acacattgct	tataaacgct	ttggtttcta	caggcgagtt	gaaggaaaatt	420
gaggaatacg	atgttgactt	tgaccatcag	ttccttgaaa	cggagaagta	tgatgcaaaa	480
ccgacctaca	aaaagttcct	cggctacagg	cctggcgat	atgttatcgg	tgacaagata	540
gtctatatcg	agaacagcga	tggtaacacg	aatgtgcgtt	ttcatcaggc	agacacccat	600
aagagattct	tcgctcttct	ggaatcccag	aacatccgtg	taaatcgctt	cagggcagac	660
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atccgtgcc	accgatgcag	ttcgctctac	aatgacatct	ttgctctgag	aggatggaag	780
acggaggaga	ttaacggcat	ccagttcgac	ctcattccat	tcttggtgag	aaatgggaag	840
gcaagtgcta	tcgtcttgct	atccagagac	aaagacgcaa	cagtggcgac	cttgacctgt	900
gggaaggcga	atacacttac	cgatgcattc	tga			933

&lt;210&gt; 5196

&lt;211&gt; 690

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5196

aattattctt	atcatccgaa	tagggaatct	tcttattttt	tctgtcttta	taatcaagaa	60
atcaattata	aaaccaaaaa	cagaaaacat	atgcagaaag	tactctttat	caccacaatc	120
ctactttacat	tattcgctct	ttctatccgt	gccgaacaca	atcctcgaaa	aaggcccgat	180
gtatctgccc	aattccaaac	cgtctccggt	cacagcatca	gtttaaatgg	catcggaacta	240
gcctatagtt	atgaatatgc	ttttaccccc	aaagggaacta	ttatttttag	cgcaggatct	300
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gacaccaaag	actatcattt	agtaaccgga	gatttagcca	tagaaccacg	tttttattat	420
aacctgaaga	aaagacatcg	caatggcaaa	cgtacttggg	gcaattccgg	cgggtattta	480
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atatatgtta	tcaccccta	ttggggattc	cgctcgctat	ggaagcattt	tctattcgat	600
ctatcgggtg	gagtcggcta	tatcggatcc	tcaaatagaa	cttctgccgt	ttatccgggt	660
ttaagaatag	gtttaggata	cagattctga				690

&lt;210&gt; 5197

&lt;211&gt; 1290

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5197

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ggaacaggcg	gaactttctt	tcaggggtta	gtctttctat	gtgtacttgc	tatcttgctt	300
agcctctctt	cttatttttt	ttctccggtt	cttttgagat	attttgtgca	ctcttctgag	360
atatattgtg	ccgtgattga	ttatctggat	tggagatgtt	tcggtttgct	tttttctttt	420
ccctttctgg	catttcgttc	tttttatatt	ggtattgtcc	gaaccaatgc	tttgctcatgg	480
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tacctgtttc	cgctttgtag	gaaaatttta	aagttgggct	atgcaattgg	gcttcccctg	960

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cttattaata	tttcaagtat	cccttttgca	gtgatgttgc	tgaattatgt	gtttgctttg	1080
cctggatatg	tgtatattaa	tgcggtgacg	ggtagcgggta	aaacccgtat	tgcccttttg	1140
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gcctctctgg	cagtatatct	gacagcggaa	tatctttttg	tgattttgtt	ggctgttcag	1260
tccgtactct	atttgcggtat	atcatcgtaa				1290

&lt;210&gt; 5198

&lt;211&gt; 252

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5198

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gtgttgcaaa	aagaaaaaca	gcaaaaactct	aatatgacat	ggcaaaaata	caaattaaat	120
ctgagaaact	cacacctttt	ggaggaattt	tttcaatcat	ggagaaattt	gactccatgc	180
tttaccctgt	tatcgactca	acactgggtc	agagatgcag	cagtatcttc	ggatatcagt	240
tcagcgagat	ag					252

&lt;210&gt; 5199

&lt;211&gt; 255

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5199

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agtacttttt	ttgagttcat	tgctcgctctg	ttagattatt	attgtgtatc	attactttct	180
tttaaagagg	atatttttaa	gatatacctct	tttcctttgt	ttataaaacc	tctttcacct	240
aatcaatttc	tctaa					255

&lt;210&gt; 5200

&lt;211&gt; 696

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5200

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&lt;210&gt; 5201

&lt;211&gt; 1893

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5201

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&lt;210&gt; 5202

&lt;211&gt; 834

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5202

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&lt;210&gt; 5203

&lt;211&gt; 216

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5203

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<210> 5204  
 <211> 963  
 <212> DNA  
 <213> B.fragilis

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 ttagttggag cacttgtaag tgctttcctg ttggcttctt gctcaggcgg ggataagagt 180  
 aaagctcctg ttgtcagtac ggcagatatt gaaaatgcgg cagaagtaat caagtattat 240  
 aatacttcgc ttgggggtgtt gaaagatatg gtgaaggaaa aagatgtaaa tgctgtattg 300  
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 caggctttcc tttcacaagt ggaaacattt ataaaacagg tgaagaaagt aagggaaaaa 900  
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 <211> 271  
 <212> DNA  
 <213> B.fragilis

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 catcaagcag gaatccggta gttggaagtg ggctatcttc acggcaggat ataccacggc 180  
 gttggcatgg cttgtttcat ttgccgtcta tcagatagga ggaatgttta gcccaatagc 240  
 atggatgtca aacttgctca tgatggtcta g 271

<210> 5206  
 <211> 471  
 <212> DNA  
 <213> B.fragilis

<400> 5206  
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 gcaacattgg atcatcaatg gattcatgtg gatacggaaac gtgctaaagt ggagagtcct 180  
 tatcatagca ctattgttca cggatatttg acattgtcat tgcttctca tttatggaat 240  
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 actaatctgc gtggtgtggc taaagccgag attaaatttg cgattgagat taaagatcag 420  
 ccaaagaaag cccttggaagg tatcgctatc ttcttgatt attttaattg a 471

<210> 5207  
 <211> 861  
 <212> DNA  
 <213> B.fragilis

&lt;400&gt; 5207

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&lt;210&gt; 5208

&lt;211&gt; 405

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5208

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&lt;210&gt; 5209

&lt;211&gt; 738

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5209

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&lt;210&gt; 5210

&lt;211&gt; 3189

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5210

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&lt;210&gt; 5211

&lt;211&gt; 318

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5211

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tacactatatt	actactag					318

&lt;210&gt; 5212

&lt;211&gt; 741

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5212

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&lt;210&gt; 5213

&lt;211&gt; 204

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5213

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gaaacacccc	tccgctttta	ttag				204

&lt;210&gt; 5214

&lt;211&gt; 2448

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5214

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&lt;210&gt; 5215

&lt;211&gt; 225

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5215

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&lt;210&gt; 5216

&lt;211&gt; 405

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5216

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&lt;210&gt; 5217

&lt;211&gt; 1200

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5217

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&lt;210&gt; 5218

&lt;211&gt; 435

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5218

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&lt;210&gt; 5219

&lt;211&gt; 762

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

&lt;400&gt; 5219

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&lt;210&gt; 5220

&lt;211&gt; 1083

&lt;212&gt; DNA

&lt;213&gt; B.fragilis

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 <221> unsure  
 <222> (924), (1039)  
 <223> Identity of nucleotide sequences at the above locations are unknown.

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<210> 5221

<211> 216

<212> DNA

<213> B.fragilis

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<211> 2256

<212> DNA

<213> B.fragilis

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<210> 5223

<211> 139

<212> PRT

<213> B.fragilis

<400> 5223

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          35          40          45
Ser Leu Leu Ile Asp Tyr Met Lys Ala Gly Ala Gln Val Thr Met Leu
          50          55          60
Thr Asp His Gly Met Phe Ile Pro Ala Ser Gly Arg Asn Cys Phe Lys
          65          70          75          80
Ser Tyr Pro Gly Gln Gln Ile Ser Ile Phe Asn Phe Asn Ala Thr Gly
          85          90          95
Leu Arg Ala Asp Gly Leu Val Tyr Pro Leu Ser Asp Phe Ser Asn Trp
          100          105          110
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<210> 5224

<211> 611

<212> PRT

<213> B.fragilis

<400> 5224

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1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387</
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			500					505					510				
Ile	Glu	Lys	Glu	Ile	Ser	Tyr	Tyr	Gln	Thr	Lys	Leu	Gln	Asn	Pro	Tyr		
			515					520					525				
Gly	Leu	Pro	Leu	Asp	Ser	Arg	Lys	Glu	Tyr	Thr	Lys	Ser	Asp	Trp	Ile		
			530				535					540					
Met	Trp	Thr	Ala	Ala	Met	Ser	Ser	Asp	Lys	Ala	Thr	Phe	Glu	Lys	Phe		
545					550					555					560		
Ile	Ser	Pro	Val	Tyr	Lys	Tyr	Ala	Asn	Glu	Thr	Val	Ser	Arg	Val	Pro		
				565					570					575			
Leu	Ser	Asp	Trp	His	His	Thr	Asp	Ser	Gly	Lys	Phe	Val	Gly	Phe	Lys		
			580					585					590				
Ala	Arg	Ser	Val	Ile	Gly	Gly	Tyr	Trp	Met	Lys	Val	Leu	Met	Asp	Lys		
		595					600						605				
Met	Gln	Lys															
		610															

&lt;210&gt; 5225

&lt;211&gt; 249

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5225

Cys	Gly	Gly	Leu	Phe	Arg	Trp	His	Val	Leu	Thr	Lys	Ser	Arg	Met	Thr		
1			5						10					15			
Arg	Asn	Thr	Trp	His	Met	Pro	Leu	Arg	Asp	Ser	Thr	His	Val	Trp	Lys		
			20					25					30				
Glu	Ser	Tyr	Asp	Lys	Glu	Arg	Gly	Gly	Leu	Trp	Trp	Asn	Phe	Lys	His		
			35				40					45					
Asp	Gly	Lys	Met	Ala	Cys	Ile	Asn	Tyr	Pro	Thr	Thr	Val	Gly	Ala	Met		
			50			55				60							
Thr	Leu	Tyr	Asn	Val	Thr	Lys	Asp	Pro	Asp	Tyr	Leu	Glu	Lys	Ala	Lys		
65				70					75					80			
Ser	Val	Tyr	Ala	Trp	Ser	Arg	Asp	Val	Phe	Phe	Asp	Lys	Glu	Lys	Gly		
			85					90					95				
Arg	Ile	Ala	Asp	Asn	Met	His	Tyr	His	Phe	Gln	Arg	Gln	Asn	Gly	Met		
			100					105					110				
Asp	Ile	Asp	Trp	Thr	Thr	Gln	Leu	Tyr	Asn	Gln	Ala	Thr	Phe	Ile	Gly		
			115				120					125					
Ser	Ala	Val	Met	Leu	Tyr	Lys	Ala	Thr	Gly	Glu	Lys	Ala	Tyr	Leu	Asp		
			130			135				140							
Asp	Ala	Val	Leu	Ala	Ala	Asp	Tyr	Val	Arg	Asn	Glu	Met	Cys	Asp	Ala		
145				150					155					160			
Asp	Gly	Leu	Leu	Pro	Phe	Lys	Asn	Gly	Val	Glu	Gln	Gly	Ile	Tyr	Ala		
			165					170						175			
Ala	Ile	Phe	Ala	Gln	Tyr	Ile	Ile	Arg	Leu	Ile	Glu	Asp	Gly	Asn	Gln		
			180					185					190				
Pro	Gln	Tyr	Met	Asp	Trp	Leu	Arg	His	Asn	Ile	Asp	Val	Ala	Trp	Asn		
			195			200						205					
Asn	Arg	Asp	Val	Asn	Arg	Asn	Val	Thr	Phe	Lys	Asp	Ala	Thr	Lys	Pro		
			210			215					220						
Cys	Pro	Thr	Gly	Val	Met	Glu	Ser	Tyr	Asp	Ala	Ser	Gly	Cys	Pro	Ala		
225				230					235					240			
Leu	Met	Gln	Val	Ile	Ser	Pro	Phe	Lys									
			245														

&lt;210&gt; 5226

&lt;211&gt; 481

&lt;212&gt; PRT

&lt;213&gt; B.fragilis



Leu 1	Lys	Leu	Ser	Val 5	Leu	Ile	Leu	Ala	Thr 10	His	Gln	Leu	Met	Leu 15	Phe
Ile	Val	Gln	Val	Leu 20	Val	Val	His	Gly 25	Thr	Leu	Cys	Ile	Asn 30	Gly	Tyr
Leu	Leu	Phe	Gly	Leu 35	Val	Gln	Gly 40	Phe	Thr	Gln	Leu	Ile 45	Asp 30	Ala	Pro
Val	Ile	Ile	Ser	Ile 50	Phe	Gln 55	Arg	Thr	Gly	Gly	Ile 60	Phe	Ile	Asp	Ala
Tyr 65	Ile	Ile	Arg	Tyr 70	Val	Ala	Gln	Leu	Ile	Val 75	Ile	Phe	Ile	Thr	Glu 80
Thr	Ser	Gly	Arg	Arg 85	Asn	Leu	Arg	Met	Asn 90	Ser	Ile	Cys	Thr	Val 95	Phe
His	Ser	Phe	Pro	Lys 100	Ser	Phe	Tyr	Ile 105	Val	Thr	Phe	Gln	Ser	Phe	Gln
Ile	Gly	Ile	Ser	His 115	Tyr	Arg	Ser	Gly 120	Ile	Val	Thr	Tyr	His	Thr	Ala
Pro	Val	Pro	Gly	Thr 130	Cys	Pro	Phe	Gly 135	Lys	Glu	Ser	Ala	Phe	Leu	Val
Ser 145	Ile	Cys	Gln	Ser 150	Leu	Leu	His	Leu	Phe	Val 155	His	Arg	Arg	Ile	His 160
Gln	Val	Glu	Glu	Arg 165	Glu	Gln	Ala	Ala	Glu 170	Cys	Ile	Pro	Glu	Thr	Gly
Ile	Gly	Lys	His 180	Ile	Ser	Arg	Gln	His 185	Phe	Thr	Val	Val	Gly	Thr	Val
Met	Tyr	Arg	Phe 195	Pro	Phe	Gly	Ile 200	Gln	Phe	Val	Glu	Ala	Ser	Arg	Glu
Lys	Tyr	Arg	Thr 210	Ile	Glu	Ala	Arg 215	Val	Glu	Cys	Thr	Glu	Met	Ile	Gly
Ile 225	Ile	Val	Phe	His 230	Leu	Asn	Thr	Ser	Gln	Asn 235	Leu	Val	Pro	Phe	Leu 240
Ala	Ser	Phe	Gly	Cys 245	Asn	Ser	Phe	Gln	Ile	Val 250	Phe	Thr	Gln	Leu	Phe
Gln	Val	Leu	Phe 260	Cys	Leu	Leu	Gly	Ala	Asp 265	Lys	Arg	Arg	Ser	His	Ser
Tyr	Val	Asp	Arg 275	Leu	Ser	Thr	Thr	Cys	Arg	Glu	Pro	Asp	Asp	Thr	Thr
Cys	Met	Phe	Ile 290	Phe	Arg	Phe	Gln	Leu	Thr	Arg	Thr	Asp	Val	Ala	Val
Gly 305	Asn	Cys	Cys	Gly 310	Lys	Ser	Glu	Arg	Leu	Ile 315	Glu	His	Gln	Tyr	Lys 320
Ile	Ile	Leu	Lys 325	Val	Leu	Arg	His	Ser	Ser	Thr 330	Val	Leu	Gly	Cys	Val
Ala	Asp	Asp	Leu 340	Val	Leu	Phe	Arg	Asn	His	Phe	His	Ile	Arg	Thr	Val
Val	Glu	Ser	Ile 355	Tyr	His	Tyr	Ile	Arg	Ile	Leu	Thr	Leu	Arg	Lys	Ser
Glu	Thr	Lys	His 370	Arg	Arg	Thr	Ala	Gly	Arg	Ser	Asn	Phe	Gly	Arg	Asp
Ile 385	Met	Ile	Gly	Gln 390	Ile	Tyr	Phe	Ile	Ile	Ile	Arg	Phe	Gly	Asn	Leu 400
Ser	Leu	Met	Arg 405	Glu	Pro	Ala	Arg	Thr	Leu	Ile	Leu	Ile	Glu	His	Asp
Leu	Ser	Arg	Asn 420	Arg	His	Asn	Gly	Lys	Leu	Pro	Val	Val	Ile	Asn	Pro
Arg	Ala	Gly	Leu 435	Val	Ser	Leu	Leu	Lys	Ser	Pro	Asp	Phe	Ile	Gly	Ile
Ile	Gly	Ile	Ser 440	Pro	Ser	Ile	Thr	His	Leu	Ser	Gly	Leu	Cys	His	Pro

450                      455                      460  
 Glu Val His Ser Pro Arg His Gly Asn Ser Arg Ile Cys Ile Ser Gly  
 465                      470                      475                      480  
 Arg

<210> 5227  
 <211> 788  
 <212> PRT  
 <213> B.fragilis

<400> 5227

Ser Phe Phe Pro Leu Ile Leu Lys Ile Lys Lys Thr Val Leu Val Arg  
 1                      5                      10                      15  
 Val Ile Cys Gly Glu Phe Lys Thr Ile Asn Ile Met Lys Lys Leu Ala  
                     20                      25                      30  
 Leu Leu Leu Val Gly Val Leu Gly Thr Ala Phe Cys Thr Phe Ala Lys  
                     35                      40                      45  
 Ser Thr Thr Glu Pro Val Asp Tyr Val Ser Pro Leu Val Gly Thr Gln  
                     50                      55                      60  
 Ser Lys His Ala Leu Ser Thr Gly Asn Thr Tyr Pro Ala Ile Ala Met  
 65                      70                      75                      80  
 Pro Trp Gly Met Asn Phe Trp Val Ala Gln Thr Gly Lys Met Gly Asp  
                     85                      90                      95  
 Gly Trp Ala Tyr Thr Tyr Asp Ala Asp Lys Ile Arg Gly Phe Lys Gln  
                     100                      105                      110  
 Thr His Gln Pro Ser Pro Trp Ile Asn Asp Tyr Gly Gln Phe Ala Ile  
                     115                      120                      125  
 Met Pro Val Thr Gly Lys Val Val Phe Asp Gln Asp Gln Arg Ala Ser  
                     130                      135                      140  
 Trp Phe Ser His Lys Ala Glu Val Ala Lys Pro Tyr Tyr Tyr Lys Val  
 145                      150                      155                      160  
 Tyr Leu Ala Asp His Asp Val Thr Thr Glu Ile Ala Pro Thr Ser Arg  
                     165                      170                      175  
 Ala Ala Met Phe Arg Phe Thr Phe Pro Glu Ser Lys Asp Ser Tyr Val  
                     180                      185                      190  
 Val Val Asp Ala Phe Asp Asn Gly Ser Tyr Val Lys Val Ile Pro Glu  
                     195                      200                      205  
 Glu Asn Lys Ile Ile Gly Tyr Thr Thr Lys Asn Ser Gly Gly Val Pro  
                     210                      215                      220  
 Glu Asn Phe Lys Asn Tyr Phe Val Leu Val Phe Asp Lys Pro Phe Thr  
 225                      230                      235                      240  
 Phe Thr Ala Ala Val Thr Asn Gly Asn Ile Arg Pro Gly Glu Leu Glu  
                     245                      250                      255  
 Ser Lys Asp Lys His Ala Gly Gly Ile Ile Gly Phe Ser Thr Arg Arg  
                     260                      265                      270  
 Gly Glu Thr Val Asn Val Arg Val Ala Ser Ser Phe Ile Ser Pro Glu  
                     275                      280                      285  
 Gln Ala Glu Gln Asn Leu Lys Glu Leu Gly Lys Asp Asn Leu Glu Ala  
                     290                      295                      300  
 Val Ala Ala Lys Gly Arg Gln Glu Trp Asn Lys Val Leu Gly Arg Ile  
 305                      310                      315                      320  
 Glu Val Glu Asp Asp Asn Thr Asp His Leu Arg Thr Phe Tyr Ser Cys  
                     325                      330                      335  
 Leu Tyr Arg Ser Val Leu Phe Pro Arg Ser Phe Tyr Glu Leu Asp Ala  
                     340                      345                      350  
 Lys Gly Lys Pro Val His Tyr Ser Pro Tyr Asn Gly Lys Val Leu Pro  
                     355                      360                      365  
 Gly Tyr Met Phe Thr Asp Thr Gly Phe Trp Asp Thr Phe Arg Cys Leu

370		375		380
Phe Pro Phe Leu Asn Leu Met Tyr Pro Ser Met Asn Glu Lys Met Gln				
385		390		400
Glu Gly Leu Ala Asn Thr Tyr Lys Glu Ser Gly Phe Leu Pro Glu Trp				
	405		410	415
Ala Ser Pro Gly His Arg Gly Cys Met Val Gly Asn Asn Ser Ala Ser				
	420		425	430
Val Val Ala Asp Ala Tyr Leu Lys Gly Leu Lys Gly Tyr Asp Ile Glu				
	435		440	445
Thr Leu Trp Glu Ala Val Lys His Gly Ala Asn Ala Val His Pro Gln				
	450		455	460
Val Ser Ser Thr Gly Arg Leu Gly Tyr Glu Tyr Tyr Asn Gln Leu Gly				
465		470		475
Tyr Val Pro Tyr Asn Val Gly Ile Asn Glu Asn Ala Ala Arg Thr Leu				
	485		490	495
Glu Tyr Ala Tyr Asp Asp Trp Cys Ile Tyr Gln Leu Gly Lys Ala Leu				
	500		505	510
Asn Lys Pro Glu Glu Glu Ile Ala Val Tyr Ala Gln Arg Ala Met Asn				
	515		520	525
Tyr Lys Asn Leu Tyr Asp Lys Glu His Lys Leu Met Arg Gly Lys Asn				
	530		535	540
Lys Asp Gly Gln Phe Gln Ser Pro Phe Asn Pro Leu Lys Trp Gly Asp				
545		550		555
Ala Phe Thr Glu Gly Asn Ser Trp His Tyr Thr Trp Ser Val Phe His				
	565		570	575
Asp Pro Gln Gly Leu Ile Asp Leu Met Gly Gly Gln Gln Gly Phe Asn				
	580		585	590
Gln Met Met Asp Ser Val Phe Ile Leu Pro Pro Val Phe Asp Asp Ser				
	595		600	605
Tyr Tyr Gly Gly Val Ile His Glu Ile Arg Glu Met Gln Ile Met Asn				
	610		615	620
Met Gly Gln Tyr Ala His Gly Asn Gln Pro Ile Gln His Met Leu Tyr				
625		630		635
Leu Tyr Asn Tyr Ser Gly Gln Pro Trp Lys Ala Gln His Trp Ile Arg				
	645		650	655
Glu Val Met Asp Lys Leu Tyr Thr Pro Asn Ala Asp Gly Tyr Cys Gly				
	660		665	670
Asp Glu Asp Asn Gly Gln Thr Ser Ala Trp Tyr Val Phe Ser Ala Met				
	675		680	685
Gly Phe Tyr Pro Val Cys Pro Gly Thr Asp Gln Tyr Val Met Gly Thr				
	690		695	700
Pro Tyr Phe Lys Gln Met Lys Leu His Leu Glu Asn Gly Lys Thr Val				
705		710		715
Gln Ile Ser Ala Pro Gly Asn Ser Asp Glu Asn Arg Tyr Ile Ala Ser				
	725		730	735
Met Thr Val Asn Gly Lys Thr Leu Thr Arg Asn Tyr Leu Thr His Lys				
	740		745	750
Glu Leu Met Asn Gly Ala Lys Ile Thr Met Lys Met Ser Ser Thr Pro				
	755		760	765
Asn Lys Gln Arg Gly Val Arg Glu Ser Asp Phe Pro Tyr Ser Phe Ser				
	770		775	780
Lys Glu Val Arg				
785				

&lt;210&gt; 5228

&lt;211&gt; 837

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5228

Met	Val	Lys	Thr	Ile	Lys	Lys	Glu	Ser	Glu	Val	Met	Lys	Leu	Lys	Leu
1				5					10					15	
Ser	Thr	Leu	Phe	Leu	Gly	Ala	Ala	Ala	Met	Leu	Ser	Ser	Cys	Gly	Ala
		20						25					30		
Ser	Gln	Asp	Val	Lys	Ser	Glu	Lys	Ser	Glu	Met	Arg	Ala	Pro	Ala	Tyr
		35					40					45			
Pro	Leu	Val	Met	Ile	Asp	Pro	Tyr	Thr	Ser	Ala	Trp	Ser	Phe	Thr	Asp
	50					55					60				
Asn	Leu	Tyr	Asp	Gly	Pro	Val	Lys	His	Trp	Thr	Gly	Lys	Asp	Phe	Pro
65					70					75					80
Phe	Leu	Gly	Val	Ala	Lys	Val	Asp	Gly	Gln	Ile	Tyr	Arg	Phe	Met	Gly
			85						90					95	
Thr	Glu	Glu	Leu	Glu	Leu	Leu	Pro	Leu	Val	Lys	Thr	Ser	Glu	Gln	Gly
			100						105					110	
Arg	Trp	Thr	Ala	Lys	Tyr	Thr	Thr	Lys	Lys	Pro	Ala	Asp	Gly	Trp	Gln
		115					120					125			
Asn	Ala	Asp	Phe	Asn	Asp	Ala	Ala	Trp	Lys	Glu	Gly	Glu	Gly	Ala	Phe
	130					135					140				
Gly	Thr	Met	Glu	Asn	Glu	Ser	Thr	Ala	Lys	Thr	Gln	Trp	Gly	Glu	Glu
145					150					155					160
Tyr	Ile	Trp	Ile	Arg	Arg	Lys	Ala	Asp	Ile	Lys	Asp	Asn	Leu	Gln	Gly
			165						170					175	
Lys	Asn	Val	Tyr	Leu	Glu	Tyr	Ser	His	Asp	Asp	Asp	Ala	Ile	Ile	Tyr
		180						185					190		
Val	Asn	Gly	Val	Lys	Val	Val	Asp	Thr	Gly	Asn	Ser	Ala	Lys	Lys	His
		195					200					205			
Met	Leu	Ala	Lys	Leu	Pro	Glu	Glu	Ala	Val	Ala	Ala	Leu	Lys	Gln	Gly
	210					215				220					
Glu	Asn	Leu	Ile	Ala	Ile	Tyr	Cys	Asn	Asn	Arg	Val	Ala	Asn	Gly	Leu
225					230					235					240
Ile	Asp	Cys	Gly	Leu	Leu	Val	Glu	Lys	Asp	Asn	Thr	Gln	Asn	Phe	Thr
			245						250					255	
Gln	Thr	Ala	Val	Gln	Lys	Ser	Val	Asp	Val	Gln	Ala	Met	Gln	Thr	Asn
		260						265					270		
Tyr	Glu	Phe	Thr	Cys	Gly	Pro	Val	Asp	Leu	Lys	Leu	Ala	Phe	Thr	Ser
		275					280					285			
Pro	Leu	Phe	Met	Asp	Asn	Leu	Asp	Leu	Met	Thr	Arg	Pro	Val	Ser	Tyr
	290					295					300				
Leu	Thr	Tyr	Glu	Val	Ala	Ser	Asn	Asp	Gly	Asn	Lys	His	Asn	Val	Glu
305					310					315					320
Leu	Tyr	Phe	Glu	Ala	Gly	Pro	Gln	Trp	Ala	Leu	Asp	Gln	Pro	His	Gln
			325						330					335	
Glu	Ala	Val	Ala	Glu	Ser	Phe	Thr	Glu	Gly	Asn	Leu	Leu	Tyr	Leu	Lys
		340						345					350		
Thr	Gly	Ser	Arg	Asn	Gln	Glu	Ile	Leu	Gly	Lys	Lys	Gly	Asp	Asp	Val
		355					360						365		
Arg	Ile	Asp	Trp	Gly	Tyr	Phe	Tyr	Met	Ala	Ala	Asp	Lys	Glu	Asn	Ser
	370					375					380				
Ser	Cys	Ala	Thr	Gly	Glu	Gly	Lys	Thr	Leu	Arg	Lys	Ser	Phe	Ile	Asp
385					390					395					400
Gly	Lys	Leu	Thr	Ser	Ser	Lys	Thr	Asp	Gly	Ser	Asp	Lys	Leu	Ala	Leu
			405						410					415	
Val	Arg	Ser	Leu	Gly	Glu	Thr	Lys	Lys	Ala	Glu	Gly	His	Leu	Leu	Leu
		420						425					430		
Gly	Tyr	Asp	Asp	Leu	Tyr	Ser	Ile	Gln	Tyr	Phe	Gly	Glu	Asn	Leu	Arg
		435					440					445			
Pro	Tyr	Trp	Asn	Arg	Asn	Gly	Asn	Glu	Thr	Ile	Gln	Ser	Gln	Phe	Ala
	450					455						460			

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<400> 5229
Phe Val Leu Leu Phe Ile Cys Leu Lys Lys Leu Ser Gly Thr Pro Cys
1      5      10
Arg Ser Val Val Asn Lys Thr Gln Asn Ser Leu Ile Met Arg Lys Leu
      20      25      30

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Ala Met Trp Ala Leu Gly Ala Leu Phe Val Ala Gly Cys Ala Glu Thr  
 35 40 45  
 Glu Lys Ala Thr Thr Asp Ser Gly Leu Val Lys Ser Asn Phe Gln Thr  
 50 55 60  
 Glu Val Gly Gly Lys Lys Thr Asp Leu Tyr Val Leu Arg Asn Gln Asn  
 65 70 75 80  
 Asn Met Glu Val Cys Val Thr Asn Phe Gly Gly Arg Ile Val Ser Val  
 85 90 95  
 Met Val Pro Asp Lys Glu Gly Val Met Arg Asp Val Val Leu Gly Phe  
 100 105 110  
 Asp Ser Ile Gln Asp Tyr Ile Ser Lys Pro Ser Asp Phe Gly Ala Ser  
 115 120 125  
 Ile Gly Arg Tyr Ala Asn Arg Ile Asn Gln Gly Lys Phe Thr Leu Asp  
 130 135 140  
 Gly Val Glu Tyr Gln Leu Pro Arg Asn Asn Tyr Gly His Cys Leu His  
 145 150 155 160  
 Gly Gly Pro Lys Gly Phe Gln Tyr Gln Val Tyr Asp Ala Lys Gln Val  
 165 170 175  
 Gly Pro Gln Glu Leu Glu Leu Thr Tyr Leu Ser Lys Asp Gly Glu Glu  
 180 185 190  
 Gly Phe Pro Gly Asn Ile Thr Cys Lys Val Ile Met Lys Leu Thr Asp  
 195 200 205  
 Asp Asn Ala Ile Asp Ile Lys Tyr Glu Ala Glu Thr Asp Lys Pro Thr  
 210 215 220  
 Ile Val Asn Met Thr Asn His Ser Tyr Phe Asn Leu Asp Gly Asp Ala  
 225 230 235 240  
 Gly Ser Asn Ala Asp His Leu Leu Thr Ile Asp Ala Asp Ala Tyr Thr  
 245 250 255  
 Pro Val Asp Ser Thr Phe Met Thr Ser Gly Glu Ile Val Thr Val Glu  
 260 265 270  
 Gly Thr Pro Met Asp Phe Arg Thr Pro Thr Pro Val Gly Lys Arg Ile  
 275 280 285  
 Asn Asp Phe Asp Phe Val Gln Leu Lys Asn Gly Asn Gly Tyr Asp His  
 290 295 300  
 Asn Trp Val Leu Asn Ala Lys Gly Asp Ile Thr Arg Lys Ala Ala Thr  
 305 310 315 320  
 Leu Glu Ser Pro Lys Thr Gly Ile Val Leu Asp Val Tyr Thr Asp Glu  
 325 330 335  
 Pro Gly Ile Gln Val Tyr Ala Gly Asn Phe Leu Asp Gly Ser Leu Thr  
 340 345 350  
 Gly Lys Lys Gly Ile Thr Tyr Asn Gln Arg Ala Ser Val Cys Leu Glu  
 355 360 365  
 Thr Gln Lys Tyr Pro Asp Thr Pro Asn Lys Pro Glu Trp Pro Ser Ala  
 370 375 380  
 Val Leu Arg Pro Gly Glu Thr Tyr Asn Ser His Cys Ile Phe Lys Phe  
 385 390 395 400  
 Ser Val Asp Asn Gly Lys  
 405

&lt;210&gt; 5230

&lt;211&gt; 1085

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5230

Arg Cys Phe Tyr Thr Leu Lys Ile Tyr Arg Thr Cys Phe Leu Asn Leu  
 1 5 10 15  
 Cys Thr Met Arg Lys Lys Glu Gln Met Phe Trp Leu Ala Ser Arg Ser  
 20 25 30

Arg	Met	Trp	Arg	Ile	Pro	Leu	Cys	Met	Ala	Ala	Phe	Ser	Leu	Leu	Pro
		35					40					45			
Ser	Ala	Tyr	Ser	Phe	Ala	Ser	Ala	Glu	Asn	Pro	Ala	Thr	Glu	Thr	Val
	50					55					60				
Leu	Ala	Val	Asn	Ser	Val	Gln	Gln	Gln	Arg	Thr	Val	Lys	Gly	Ile	Val
65					70					75					80
Ile	Asp	Ala	Asn	Gly	Glu	Ala	Val	Ile	Gly	Ala	Asn	Val	Lys	Glu	Pro
				85					90					95	
Gly	Ser	Thr	Thr	Gly	Thr	Ile	Thr	Asp	Met	Asn	Gly	Glu	Phe	Ser	Leu
			100					105					110		
Ser	Val	Gly	Pro	Lys	Ala	Thr	Leu	Glu	Ile	Ser	Phe	Ile	Gly	Tyr	Thr
		115					120					125			
Thr	Gln	Lys	Val	Asn	Val	Gly	Ala	Ser	Asn	Thr	Val	Lys	Val	Ile	Leu
		130				135					140				
Gln	Glu	Asp	Thr	Lys	Val	Leu	Asp	Glu	Val	Val	Ile	Thr	Gly	Phe	Gly
145					150					155					160
Met	Ala	Gln	Lys	Lys	Ala	Thr	Leu	Thr	Gly	Ala	Val	Ser	Ala	Ile	Lys
				165					170					175	
Ser	Thr	Asp	Ile	Glu	Arg	Ser	Ala	Ala	Ser	Thr	Ala	Ser	Gly	Ala	Leu
			180					185					190		
Val	Gly	Lys	Ile	Ala	Gly	Leu	Asn	Thr	Arg	Met	Gln	Asp	Gly	Arg	Pro
		195					200					205			
Gly	Ala	Ser	Thr	Ala	Leu	Gln	Ile	Arg	Asn	Met	Gly	Thr	Pro	Leu	Phe
		210				215					220				
Val	Ile	Asp	Gly	Val	Gln	Ser	Asp	Glu	Gly	Gln	Phe	Asn	Asn	Met	Asp
225					230					235					240
Phe	Asn	Asp	Ile	Glu	Asn	Ile	Ser	Ile	Leu	Lys	Asp	Ala	Ser	Ala	Ala
				245					250					255	
Ile	Tyr	Gly	Ile	Arg	Ala	Ala	Asn	Gly	Val	Val	Val	Val	Thr	Thr	Lys
			260					265					270		
Lys	Gly	Gln	Gln	Lys	Ser	Lys	Asn	Thr	Val	Ser	Val	Asn	Ala	Tyr	Tyr
		275					280					285			
Gly	Trp	Gln	Lys	Asn	Ser	Arg	Trp	Ile	Gln	Pro	Ala	Asp	Ala	Lys	Thr
	290					295					300				
Tyr	Val	Asn	Ala	Tyr	Thr	Ala	Ala	Glu	Thr	Trp	Ala	Gly	Arg	Thr	Asp
305					310					315					320
Gly	Glu	Arg	Lys	Phe	Ser	Arg	Glu	Asp	Tyr	Asp	Lys	Trp	Met	Ala	Gly
				325					330					335	
Thr	Glu	Lys	Gly	Tyr	Thr	Gly	Phe	Asp	Trp	Gly	Asp	Tyr	Ile	Trp	Lys
			340					345					350		
Thr	Ser	Pro	Gln	Tyr	Tyr	Val	Asn	Thr	Asn	Phe	Ser	Gly	Gly	Ser	Asp
		355					360					365			
Lys	Ala	Asn	Tyr	Tyr	Val	Ser	Val	Ser	His	Ile	Asn	Gln	Asp	Ala	Thr
		370				375				380					
Val	Arg	Asn	Tyr	Gly</											

			500					505					510			
Arg	Glu	Met	Glu	Asn	His	Glu	Tyr	Pro	Phe	Lys	Leu	Tyr	Arg	Tyr	Asn	
		515					520					525				
Gln	Ala	Asn	Asp	Thr	Tyr	Glu	Val	Ala	Glu	Ser	Met	Asn	Thr	Pro	Tyr	
		530					535				540					
Arg	Glu	Arg	Ile	Arg	His	Arg	Asn	Glu	Asp	Leu	Phe	Ser	Asn	Phe	Gln	
545					550					555					560	
Leu	Asn	Phe	Asp	Arg	Lys	Phe	Gly	Asp	His	Tyr	Ile	Asn	Ala	Ile	Ala	
				565					570						575	
Gly	Phe	Glu	Ala	Ser	Gln	Arg	Lys	Ser	Pro	Asn	Phe	Asn	Ile	Ile	Ser	
			580					585					590			
Thr	Pro	Val	Ala	Asn	Asn	Leu	Asn	Leu	Ile	Gln	Phe	Lys	Glu	Ile	Lys	
		595					600					605				
Thr	Phe	Asn	Asp	Asn	Gly	Asn	Asp	Thr	Gln	Ala	Arg	Met	Gly	Tyr	Leu	
		610				615					620					
Gly	Arg	Ile	Asn	Tyr	Ser	Tyr	Ala	Asp	Lys	Tyr	Leu	Val	Glu	Phe	Ile	
625					630					635					640	
Gly	Arg	Trp	Asp	Gly	Ser	Trp	Lys	Phe	Arg	Pro	Gly	Asn	Arg	Trp	Gly	
				645					650						655	
Phe	Phe	Pro	Ser	Ala	Ser	Leu	Gly	Trp	Arg	Ile	Ser	Gln	Glu	Lys	Phe	
			660					665					670			
Trp	Gln	Glu	Ser	Lys	Leu	Ala	Asn	Ile	Phe	Ser	Asp	Phe	Lys	Ile	Arg	
		675					680					685				
Gly	Ser	Tyr	Gly	Val	Val	Gly	Asp	Asp	Asn	Val	Ser	Asp	Tyr	Ser	Ala	
		690				695					700					
Phe	Asp	Tyr	Leu	Ala	Gly	Tyr	Asp	Tyr	Asn	Arg	Gly	Gly	Ser	Val	Ile	
705					710					715					720	
Asp	Gly	Gln	Tyr	Val	Val	Gly	Ser	Ala	Pro	Arg	Gly	Leu	Pro	Asn	Gln	
				725					730						735	
Thr	Leu	Ser	Trp	Ile	Lys	Ala	Lys	Ile	Leu	Asp	Ile	Gly	Val	Asp	Met	
			740					745					750			
Gly	Phe	Phe	Asn	Asn	Arg	Leu	Thr	Ala	Gln	Phe	Asp	Phe	Phe	Arg	Arg	
		755					760					765				
Leu	Arg	Thr	Gly	Ile	Pro	Glu	Ser	Arg	Tyr	Asp	Val	Leu	Leu	Pro	Ser	
		770				775					780					
Glu	Val	Gly	Phe	Gly	Leu	Pro	Lys	Glu	Asn	Leu	Arg	Ser	Asp	Leu	His	
785					790					795					800	
Ile	Gly	Tyr	Asp	Ala	Met	Val	Arg	Trp	Ala	Asp	Asn	Ile	Asn	Asp	Phe	
				805					810						815	
Asn	Tyr	Ser	Val	Gly	Ala	Asn	Val	Thr	Tyr	Ser	Arg	Phe	Tyr	Asp	Trp	
			820					825					830			
Glu	Gln	Tyr	Asp	Asp	Arg	Arg	Ser	Asn	Ser	Trp	Asp	Arg	Tyr	Arg	Asn	
		835					840					845				
Ser	Ile	Trp	His	Arg	Val	Gly	Tyr	Ile	Asn	Trp	Gly	Tyr	Glu	Ala	Val	
		850														





[illegible]



165 170 175  
 Asp Leu Thr Asp Met Lys Pro Glu Leu His Glu Arg Lys Trp Glu Ile  
 180 185 190  
 Asp Ser Leu Cys Tyr Pro Leu Arg Leu Ala Tyr Gln Tyr Trp Lys Thr  
 195 200 205  
 Thr Gly Asp Ala Ser Ile Phe Asp Glu Glu Trp Ile Gln Ala Ile Thr  
 210 215 220  
 Asn Ile Leu Arg Thr Phe Lys Glu Gln Gln Arg Lys Asp Gly Val Gly  
 225 230 235 240  
 Pro Tyr Lys Phe Gln Arg Lys Thr Glu Arg Ala Leu Asp Thr Val Thr  
 245 250 255  
 Asn Asp Gly Leu Gly Asn Pro Val Lys Pro Val Gly Leu Ile Val Ser  
 260 265 270  
 Thr Phe Arg Pro Ser Asp Asp Ala Thr Thr Leu Gln Tyr Leu Val Pro  
 275 280 285  
 Ser Asn Phe Phe Ala Val Ser Ser Leu Arg Lys Ala Ala Glu Ile Leu  
 290 295 300  
 Thr Thr Val Asn Lys Lys Thr Ala Leu Ala Asn Glu Cys Lys Ala Leu  
 305 310 315 320  
 Ala Asn Glu Val Glu Thr Ala Leu Lys Lys Tyr Ala Val Tyr Asn His  
 325 330 335  
 Pro Lys Tyr Gly Lys Ile Tyr Ala Phe Glu Val Asp Gly Phe Gly Asn  
 340 345 350  
 His Met Leu Met Asp Asp Ala Asn Val Pro Ser Leu Leu Ala Met Pro  
 355 360 365  
 Tyr Leu Gly Asp Val Ser Ile Asp Asp Pro Ile Tyr Gln Asn Thr Arg  
 370 375 380  
 Arg Phe Val Trp Ser Leu Asp Asn Pro Tyr Phe Phe Lys Gly Lys Ala  
 385 390 395 400  
 Gly Glu Gly Ile Gly Gly Pro His Ile Gly Tyr Asp Met Val Trp Pro  
 405 410 415  
 Met Ser Ile Met Met Lys Ala Phe Thr Ser Lys Asp Asp Ala Glu Ile  
 420 425 430  
 Lys Ser Cys Ile Glu Met Leu Met Asn Thr Asp Ala Gly Thr Gly Phe  
 435 440 445  
 Met His Glu Ser Phe His Lys Asp Asn Pro Glu Lys Phe Thr Arg Ala  
 450 455 460  
 Trp Phe Ala Trp Gln Asn Thr Leu Phe Gly Glu Leu Ile Leu Lys Leu  
 465 470 475 480  
 Val Asn Glu Gly Lys Val Asp Met Leu Asn Ser Ile Gln  
 485 490

<210> 5235  
 <211> 1207  
 <212> PRT  
 <213> B.fragilis

<400> 5235  
 Ala Asn Met Lys Leu His Ile Ala Met Leu Ala Ala Thr Leu Leu Leu  
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 Ser Gly Gly Ala Ser Tyr Ala Gln Gly Asn Lys Gln Glu Lys Lys Ala  
 20 25 30  
 Lys Ala Tyr Met Val Ala Asp Ala His Leu Asp Thr Gln Trp Asn Trp  
 35 40 45  
 Asp Val Gln Thr Thr Ile Lys Glu Tyr Val Trp Asn Thr Ile Asn Gln  
 50 55 60  
 Asn Leu Phe Leu Leu Lys Lys Tyr Pro Asn Tyr Val Phe Asn Phe Glu  
 65 70 75 80  
 Gly Gly Val Lys Tyr Ala Trp Met Lys Glu Tyr Tyr Pro Ala Gln Tyr

				85					90					95			
Glu	Glu	Met	Lys	Lys	Tyr	Ile	Gly	Glu	Gly	Arg	Trp	His	Ile	Ser	Gly		
			100					105					110				
Ser	Ser	Trp	Asp	Ala	Thr	Asp	Ala	Leu	Val	Pro	Ser	Thr	Glu	Ser	Phe		
		115					120					125					
Ile	Arg	Asn	Ile	Met	Leu	Gly	Gln	Gln	Tyr	Tyr	Arg	Gln	Glu	Phe	Gly		
	130					135					140						
Val	Glu	Ser	Thr	Asp	Ile	Phe	Leu	Pro	Asp	Cys	Phe	Gly	Phe	Gly	Trp		
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Thr	Leu	Pro	Thr	Ile	Ala	Ser	His	Cys	Gly	Leu	Ile	Gly	Phe	Ser	Ser		
				165					170						175		
Gln	Lys	Leu	Asp	Trp	Arg	Val	His	Pro	Phe	Tyr	Gly	Lys	Ser	Lys	His		
			180					185					190				
Pro	Phe	Thr	Ile	Gly	Leu	Trp	Lys	Gly	Ile	Asp	Gly	Ser	Ser	Ile	Met		
		195					200					205					
Leu	Ala	His	Gly	Tyr	Asp	Tyr	Gly	Arg	Arg	Trp	Asn	Asp	Glu	Asp	Leu		
	210					215				220							
Ser	Glu	Asn	Glu	Gln	Leu	Lys	Glu	Leu	Ala	Gly	Arg	Thr	Pro	Leu	Asn		
225					230					235					240		
Thr	Val	Tyr	Arg	Tyr	Tyr	Gly	Thr	Gly	Asp	Ile	Gly	Gly	Ser	Pro	Thr		
				245					250					255			
Leu	Ala	Ser	Val	Arg	Ser	Val	Glu	Lys	Gly	Leu	Arg	Gly	Asn	Gly	Pro		
			260					265					270				
Val	Glu	Ile	Val	Ser	Ala	Thr	Ser	Asp	Gln	Leu	Tyr	Lys	Asp	Tyr	Leu		
		275						280				285					
Pro	Tyr	Lys	Asn	His	Pro	Glu	Leu	Pro	Val	Phe	Asp	Gly	Glu	Leu	Leu		
		290				295				300							
Met	Asp	Val	His	Gly	Thr	Gly	Cys	Tyr	Thr	Ser	Gln	Ala	Ala	Met	Lys		
305					310					315					320		
Leu	Tyr	Asn	Arg	Gln	Asn	Glu	Leu	Leu	Gly	Asp	Ala	Ala	Glu	Arg	Ala		
				325					330					335			
Ala	Val	Thr	Ala	Glu	Trp	Leu	Asn	Gln	Ala	Lys	Tyr	Pro	Gly	Ser	Thr		
				340				345					350				
Ile	Asn	Glu	Ala	Trp	Lys	Arg	Phe	Ile	Tyr	His	Gln	Phe	His	Asp	Asp		
		355					360					365					
Leu	Thr	Gly	Thr	Ser	Ile	Pro	Arg	Ala	Tyr	Glu	Phe	Ser	Trp	Asn	Asp		
		370				375					380						
Glu	Leu	Ile	Ser	Leu	Lys	Gln	Phe	Ser	Asn	Val	Leu	Thr	Ser	Ser	Ile		
385					390					395					400		
His	Gly	Ile	Gly	Arg	Glu	Leu	Asp	Thr	Arg	Val	Ser	Gly	Ile	Pro	Val		
				405					410					415			
Ile	Leu	Tyr	Asn	Ala	Leu	Gly	Phe	Thr	Val	Thr	Asp	Ile	Ala	Glu	Ile		
			420					425					430				
Glu	Leu	Asp	Leu	Pro	Lys	Ala	Pro	Lys	Gly	Ile	Thr	Val	Tyr	Asp	Glu		
		435				440						445					
Lys	Gly	Lys	Lys	Val	Ser	Ala	Gln	Leu	Ile	Ser	Tyr	Thr	Asp	Gly	Lys		
		450				455					460						
Ala	Arg	Ile	Leu	Val	Glu	Ala	Thr	Val	Pro	Ala	Thr	Gly	Tyr	Val	Val		
465					470					475					480		
Tyr	Asp	Val	Arg	Thr	Ser	Gly	Thr	Gly	Ala	Ser	Asn	Val	Ser	Thr	Asn		
				485					490					495			
Val	Asn	Thr	Leu	Glu	Asn	Ser	Leu	Tyr	Lys	Ile	Thr	Leu	Asp	Lys	Asn		
			500					505					510				
Gly	Asp	Ile	Val	Ser	Leu	Thr	Asp	Lys	Lys	Asn	Gly	Lys	Glu	Leu	Val		
		515					520					525					
Lys	Ala	Gly	Lys	Ala	Ile	Arg	Leu	Ala	Val	Phe	Thr	Gln	Asn	Lys	Ser		
		530				535					540						
Tyr	Asn	Trp	Pro	Ala	Trp	Glu	Val	Leu	Lys	Glu	Thr	Thr	Asp	Arg	Thr		
545					550					555					560		

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1025	1030	1035	1040
Pro Ala Thr Thr Val Ala Gly Thr Leu Phe Arg Thr Asn Asn Val Gly			
	1045	1050	1055
Asn Ala Ala Thr Ala Gly Asn Asp Glu Glu Ala Val Arg Glu Asn Ile			
	1060	1065	1070
Leu Lys Arg Ala Lys Ile Ile Ala Cys Ser Gly Tyr Thr Asn Asp Glu			
	1075	1080	1085
Glu Lys Pro Asp Phe Leu Leu Asp Gly Lys Thr Asp Thr Lys Trp Cys			
	1090	1095	1100
Asp Val Ser Gln Thr Pro Asn Tyr Val Asp Phe Asp Leu Gly Glu Ala			
	1105	1110	1115
Gln Asn Ile Ser Gly Trp Lys Met Val Asn Ala Gly Gln Glu Ser His			
	1125	1130	1135
Ser Tyr Ile Thr Asn Gly Cys Phe Leu Gln Gly Lys Met Asn Pro Gly			
	1140	1145	1150
Asp Glu Trp Thr Thr Leu Asp Ala Ile Asp Gly Asn His Ala Asn Val			
	1155	1160	1165
Val Ser Arg Pro Leu Asn Tyr Asp Gly Lys Val Arg Tyr Ile Arg Leu			
	1170	1175	1180
Leu Val Thr Arg Pro Thr Gln Ser Thr Gly Gly Arg Asp Thr Arg Ile			
	1185	1190	1195
Tyr Glu Leu Glu Val Tyr Lys			1200
	1205		

&lt;210&gt; 5236

&lt;211&gt; 619

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5236

Gln Thr Met Lys Lys Arg Asn Phe Ile Ala Val Ala Ala Cys Ala Leu			
1	5	10	15
Ala Leu Ser Ser Cys Ser Gly Phe Leu Asp Gln Lys Pro Asp Arg Ile			
	20	25	30
Met Thr Glu Asp Gln Val Tyr Gly Asp Val Asn Leu Thr Lys Ser Val			
	35	40	45
Leu Ala Asn Phe Tyr Glu Arg Ile Ser Leu Gly Gln His Val Gly Asp			
	50	55	60
Thr Asp Gly Phe Ala Leu Asp Glu Ala Ile Thr Tyr Asp Thr Lys			
	65	70	75
Asp Asp Gln Glu Val Asp Arg Asn Trp Trp Arg Thr Tyr Asp Tyr Thr			
	85	90	95
Leu Ile Arg Asn Ile Asn Gln Phe Leu Lys Gly Leu Arg Glu Ser Thr			
	100	105	110
Ala Leu Ser Glu Val Glu Lys Ala Pro Met Glu Gly Glu Ala Arg Phe			
	115	120	125
Ile Arg Ala Trp Val Tyr Phe Cys Thr Cys Arg Thr Leu Gly Gly Met			
	130	135	140
Pro Ile Val Gly Asp Glu Val Tyr Asp Tyr Thr Ser Gly Met Asp Ile			
	145	150	155
Thr Thr Leu Gln Val Pro Arg Ala Thr Glu Ser Ala Met Tyr Asp Tyr			
	165	170	175
Ile Ile Glu Glu Cys Lys Thr Ile Ala Glu Met Leu Pro Thr Glu Pro			
	180	185	190
Ser Lys Asn Gly Ala Arg Ala Thr Lys Trp Ala Ala Lys Met Leu Glu			
	195	200	205
Ala Arg Ala Ala Val Tyr Ala Gly Ser Ile Ala Arg Tyr Asn Thr Val			
	210	215	220
Ala Asp Tyr Pro Leu Leu Asn Pro Glu Thr Gly Val Val Gly Ile Ser			

225 230 235 240  
 Ser Glu Lys Ala Thr Asp Tyr Tyr Lys Lys Ala Leu Ala Ala Ala Glu  
 245 250 255  
 Glu Val Ile Asn Ser Gly Lys Tyr Ser Leu Met Arg Val Ala Asp Asp  
 260 265 270  
 Ala Thr Pro Gln Glu Lys Ala Asp Asn Phe Phe Lys Ala Val Cys Glu  
 275 280 285  
 Lys Asn Gly Asn Thr Glu Val Ile Trp Ser Arg Asp Tyr Ile Tyr Pro  
 290 295 300  
 Gly Gln Thr His Gly Tyr Thr Lys Ser Val Gln Pro His Asp Gly Ala  
 305 310 315 320  
 Glu Asp Gly Gly Asn Ser Arg Leu Ser Ala Leu Leu Asn Leu Val Glu  
 325 330 335  
 Ala Phe Glu Pro Ile Ala Thr Asp Thr Pro Gly Glu Gly Ala Lys Phe  
 340 345 350  
 Asp Val Gly Thr Lys Asp Asn Pro Lys Phe Tyr Thr Asn Pro Glu Asp  
 355 360 365  
 Leu Phe Val Gly Arg Asp Pro Arg Leu Ala Gly Thr Ile Leu Tyr Pro  
 370 375 380  
 Gly Ser Ser Phe Arg Asp Arg Thr Val Val Leu Gln Thr Gly Gln Trp  
 385 390 395 400  
 Ile Lys Asn Ser Asp Gly Gln Trp Glu Gln Lys Leu Gly Gln Ser Leu  
 405 410 415  
 Gly Glu Lys Asp Asp Gln Gly Arg Tyr Val Thr Ala Leu Asn Gly Pro  
 420 425 430  
 Met Val Arg Asn Asp Gln Arg Glu Cys Asn Arg Thr Gly Phe Tyr Val  
 435 440 445  
 Arg Lys Tyr Leu Asp Lys Thr Thr Ser Ala Gly Thr Asp Arg Gly Ser  
 450 455 460  
 Glu Met Trp Asn Val Tyr Phe Arg Leu Ser Glu Ala Tyr Leu Ile Ala  
 465 470 475 480  
 Ala Glu Ala Ala Tyr Glu Leu Asn Gly Gly Ser Asp Ala Thr Ala Leu  
 485 490 495  
 Lys Tyr Ile Asn Ala Val Arg Ser Arg Ala Gly Val Lys Glu Leu Ala  
 500 505 510  
 Ser Val Asn His Gln Gln Ile Met His Glu Asn Gln Val Glu Phe Ala  
 515 520 525  
 Phe Glu Gly His Arg Trp Trp Asp Leu Lys Arg Trp Arg Gln Ala Asp  
 530 535 540  
 Lys Ile Trp Thr Gly Ser Glu Met Asp Ile Thr Ala Thr Arg Arg Gly  
 545 550 555 560  
 Leu Trp Pro Phe Leu Val Val Ser Asp Asp Lys Asn Gly Lys Trp  
 565 570 575  
 Val Phe Phe Glu Glu Asn Met Asn Arg Tyr Tyr Arg Asn Pro Leu Lys  
 580 585 590  
 Cys Leu Pro Lys His Tyr Tyr Ala Glu Leu Asp Asn Gly Trp Leu Asn  
 595 600 605  
 Asn Asn Pro Lys Leu Val Lys Asn Pro Tyr Gln  
 610 615

&lt;210&gt; 5237

&lt;211&gt; 427

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5237

Gly Pro Ala Asp Leu Leu Leu Tyr Pro Tyr Ala Ser Phe Tyr Ile Leu  
 1 5 10 15  
 Phe Leu Ile His Ile Met Thr His Thr Gln Thr Ile Thr Pro Lys Lys



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Arg Ile Asn Ser Ile Asp Ala Leu	Arg Gly Phe Ala Leu	Ile Gly Ile
35	40	45
Met Leu Leu His Cys Met Glu Arg Phe Asp Leu Thr Leu Ala Pro Val		
50	55	60
Val Glu Ser Pro Phe Trp Gln Ala Ile Asp Thr Ala Val Tyr Asp Ser		
65	70	75
Leu Tyr Phe Leu Phe Ser Gly Lys Ser Tyr Ala Met Phe Ser Leu Leu		
85	90	95
Phe Gly Leu Ser Phe Phe Met Gln Met Glu Ser Gln Ala Ala Lys Gly		
100	105	110
Val Asp Phe Arg Gly Arg Phe Leu Trp Arg Leu Ala Leu Phe Leu		
115	120	125
Phe Gly Tyr Ile Asn Gly Leu Val Tyr Met Gly Glu Phe Phe Met Val		
130	135	140
Tyr Ala Val Leu Gly Val Phe Leu Ile Pro Leu Tyr Lys Val Ser Thr		
145	150	155
Arg Trp Leu Leu Val Leu Cys Ile Leu Leu Phe Leu Gln Ile Pro Ala		
165	170	175
Val Ile Ser Phe Val Ser Leu Leu Ser Asp Asn Val Ala Asn Glu Pro		
180	185	190
Thr Ala Ala Ala Tyr Met Asp Arg Leu Phe Glu Arg Ala Ala Asp		
195	200	205
Val Phe Ile Asn Gly Ser Leu Met Asp Val Leu Ser Phe Asn Thr Phe		
210	215	220
Asp Gly Gln Ser Ala Lys Cys Leu Trp Val Phe Asn Asn Phe Arg Tyr		
225	230	235
Leu Gln Leu Leu Gly Leu Phe Ile Ala Gly Met Leu Ile Gly Arg Gln		
245	250	255
Gly Ile His Lys Ser Glu Glu Lys Met Val Lys Tyr Ser Arg Leu Phe		
260	265	270
Leu Pro Tyr Cys Leu Ala Phe Trp Ala Val Phe Tyr Ala Val Ala Phe		
275	280	285
Leu Leu Pro Val Trp Gly Val Asp Gly Phe Ala Leu Arg Val Gly Gln		
290	295	300
Thr Leu Phe Lys Thr Tyr Gly Asn Leu Gly Gln Met Met Val Tyr Phe		
305	310	315
Cys Gly Phe Thr Leu Leu Tyr Tyr Arg Tyr Lys Gly Gln Lys Val Leu		
325	330	335
Asp Arg Ile Ala Pro Val Gly Arg Met Ser Val Thr Asn Tyr Met Ala		
340	345	350
Gln Ser Ile Val Gly Val Ser Leu Phe Tyr Gly Phe Gly Gly Asn Phe		
355	360	365
Ala Val Glu Phe Asn Tyr Leu Gln Ser Phe Leu Leu Gly Ala Ala Phe		
370	375	380
Cys Val Ile Gln Ile Ala Tyr Ser Asn Trp Trp Ile Lys Arg Phe Tyr		
385	390	395
Tyr Gly Pro Met Glu Trp Leu Trp Arg Ser Leu Thr Trp Phe Gln Val		
405	410	415
Val Pro Leu Ser Arg Arg Lys Ala Ser Leu Gly		
420	425	

&lt;210&gt; 5238

&lt;211&gt; 158

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5238

Asn Arg Tyr Trp Leu Met Phe Ile Asn Ser Leu Arg Lys Ser Pro Phe

1                      5                      10                      15  
 Ser Cys Ser Leu Gly Leu Ile Leu Leu Gly Ala Phe Thr Leu Leu Ser  
                     20                      25                      30  
 Val Pro Val Tyr Gly Gln Gln Ile Gln Gln Ser Glu Arg Gln Val Gln  
                     35                      40                      45  
 Gln Val Pro Phe Leu Gln Phe Asn Phe Asp Glu Gln Gly Gly Glu Thr  
                     50                      55                      60  
 Ala Arg Asn Ser Gly Arg Gly Gly Ser Lys Tyr Asp Ala Arg Ile Thr  
 65                      70                      75                      80  
 Gly Gly Thr Val Glu Trp Gly Pro Gly Leu Gln Gln Gly Ser Ala Arg  
                     85                      90                      95  
 Leu Ser Asn Lys Gly His Phe Lys Ser Pro Asp Gly Val Leu Ala His  
                     100                      105                      110  
 Val Lys Asp Phe Thr Leu Ser Val Trp Val Tyr Leu Asn Glu Gln Ser  
                     115                      120                      125  
 Asp Asn Gln Thr Val Cys Leu His His Gly Ser Trp Lys Ile Gly Ile  
                     130                      135                      140  
 Val Asn Pro Ala Cys Phe Ser Ala Pro Ile Asp Leu Gly Tyr  
 145                      150                      155

<210> 5239

<211> 336

<212> PRT

<213> B.fragilis

<400> 5239

Ile Arg Gly Leu Phe Leu Ile Tyr Ile Phe Ser Met Lys Lys Leu Leu  
 1                      5                      10                      15  
 Phe Ser Leu Phe Thr Val Phe Ser Phe Cys Val Pro Ser Ile Ala Gln  
                     20                      25                      30  
 Gln Tyr Ser Asn Pro Val Ile Asn Tyr Ser Leu Pro Asp Pro Thr Val  
                     35                      40                      45  
 Ile Lys Ala Asp Asp Gly Tyr Tyr Tyr Leu Tyr Ala Thr Glu Asn Ile  
                     50                      55                      60  
 Arg Asn Leu Pro Ile His Arg Ser Lys Asp Met Val Asn Trp Ser Phe  
 65                      70                      75                      80  
 Val Gly Thr Ala Phe Thr Asn Glu Thr Arg Pro Thr Phe Glu Pro Lys  
                     85                      90                      95  
 Gly Asn Leu Trp Ala Pro Asp Ile Asn Lys Ile Gly Asp Arg Tyr Val  
                     100                      105                      110  
 Met Tyr Tyr Ser Met Ser Val Trp Gly Gly Glu Trp Thr Cys Gly Ile  
                     115                      120                      125  
 Gly Val Ala Thr Ala Asp Lys Pro Glu Gly Ser Phe Thr Asp His Gly  
                     130                      135                      140  
 Lys Leu Phe Arg Ser Asn Glu Ile Gly Ile Gln Asn Cys Ile Asp Pro  
 145                      150                      155                      160  
 Phe Tyr Ile Glu Asp Gly Gly Lys Lys Tyr Leu Phe Trp Gly Ser Phe  
                     165                      170                      175  
 His Gly Ile Tyr Gly Ala Glu Leu Ser Asp Asp Gly Leu Ser Leu Lys  
                     180                      185                      190  
 Glu Gly Met Lys Pro Gln Gln Val Ala Gly Thr Ala Tyr Glu Gly Thr  
                     195                      200                      205  
 Tyr Ile His Lys Arg Gly Gly Tyr Tyr Tyr Leu Phe Ala Ser Ile Gly  
                     210                      215                      220  
 Arg Cys Cys Glu Gly Leu Lys Ser Thr Tyr Thr Val Val Gly Arg  
 225                      230                      235                      240  
 Ser Lys Tyr Leu Phe Gly Pro Tyr Val Asp Lys Lys Gly Glu Ser Met  
                     245                      250                      255  
 Leu Glu Asn His His Glu Val Leu Ile Asp Lys Asn Glu Ala Phe Val

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260 265 270  
 Gly Pro Gly His Asn Ser Glu Ile Val Thr Asp Asp Lys Gly Ala Asp  
 275 280 285  
 Trp Val Phe Tyr His Ala Val Ser Val Ala Asn Pro Glu Gly Arg Val  
 290 295 300  
 Leu Met Leu Asp Arg Val Asn Trp Lys Lys Gly Trp Pro Val Val Glu  
 305 310 315 320  
 Gly Asp Thr Pro Ser Leu Gln Ala Lys Ala Pro Val Ile Gln His Lys  
 325 330 335

<210> 5240  
 <211> 147  
 <212> PRT  
 <213> B.fragilis

<400> 5240  
 Ile Asn Cys Ile Met Asn Lys Lys Phe Phe Ile Ala Met Leu Ala Phe  
 1 5 10 15  
 Ala Leu Phe Gly Met Thr Asn Val Met Ala Asn Thr Ser Lys Asp Glu  
 20 25 30  
 Val Val Glu Val Ser Ser Thr Asn Lys Val Thr Ala Thr Glu Tyr Tyr  
 35 40 45  
 Leu Glu Ala Ala Gly Gln Ser Gly Ser Gly Leu Phe Tyr Ser Ile Glu  
 50 55 60  
 Leu Leu Asp Ser Ser Gln Arg Lys Leu Lys Ile Thr Ala Lys Arg Gly  
 65 70 75 80  
 Leu Arg Ile Glu Ile Asn Cys His Gly His Gly Ile Val Pro Asp Asp  
 85 90 95  
 Arg Leu Phe Tyr Thr Ser Asp Ser Trp Thr Gly Glu Val Ile Thr Asp  
 100 105 110  
 Glu Ile Asn Thr Glu Ala Phe Thr Ile Ser Thr Ser Tyr Asn Glu Ser  
 115 120 125  
 Ala Gly Ser Ser Ser Thr Thr Lys Tyr Glu Thr Arg Tyr Tyr Tyr Ile  
 130 135 140  
 Arg Glu Arg  
 145

<210> 5241  
 <211> 161  
 <212> PRT  
 <213> B.fragilis

<400> 5241  
 Gly Lys Asn Met Lys Asn Lys Val Leu Ile Ile Val Ala Ile Leu Leu  
 1 5 10 15  
 Leu Leu Pro Asn Ala Met Ala Trp Ala His Gln Pro Ala Asp Gly Asn  
 20 25 30  
 Leu Lys His Phe Thr Lys Lys Asp Ala Thr Thr Ala Met Asp Ala Phe  
 35 40 45  
 His Ser Thr Phe Tyr Asn Pro Asp Met Lys Leu Tyr Ala Ile Ser Ser  
 50 55 60  
 Asp Met Lys Gly Arg Ala Ala Ile Trp Val Gln Ala Ile Tyr Trp Asp  
 65 70 75 80  
 Met Ile Met Asn Ala Tyr Lys Arg Thr Lys Ala Pro Lys Tyr Arg Arg  
 85 90 95  
 Leu Ile Glu Glu Val Tyr Gln Gly Gly Tyr Glu Gln Tyr Asp Lys Tyr  
 100 105 110  
 Asn Trp Asp Asn Lys Ile Glu Trp Phe Ile Tyr Asp Asp Met Met Trp  
 115 120 125

Trp Ile Ile Ser Leu Ala Arg Ala Tyr Glu Ile Thr Asn Asp Pro Lys  
 130 135 140  
 Tyr Leu Ala His Ala Ser Ser Gly Phe Tyr Pro Cys Leu Glu Arg Val  
 145 150 155 160  
 Val

<210> 5242  
 <211> 240  
 <212> PRT  
 <213> B.fragilis

<400> 5242  
 Lys Glu Ile Met Lys Ala Ile Ser Lys Ile Phe Ser Ala Leu Leu Leu  
 1 5 10 15  
 Val Met Ile Val Val Thr Ser Cys Thr Lys Asp Asn Tyr Asp Ala Pro  
 20 25 30  
 Glu Ser Met Leu Thr Gly Lys Val Val Tyr Glu Gly Glu Ala Leu Gln  
 35 40 45  
 Leu Arg Gly Asn Glu Ala Val Arg Leu Phe Leu Tyr Gln Arg Gly Tyr  
 50 55 60  
 Glu Lys His Asp Pro Ile Glu Val Phe Val Asn Gln Asp Gly Ala Tyr  
 65 70 75 80  
 Ser Ala Cys Leu Phe Asp Gly Glu Tyr Gln Leu Ile Thr Lys Ser Gly  
 85 90 95  
 Asn Gly Pro Trp Ser Glu Glu Gly Arg Asp Thr Ile Asn Val Ile Val  
 100 105 110  
 Ser Gly Asn Thr Val Gln Asn Val Glu Val Val Pro Tyr Tyr Met Val  
 115 120 125  
 Arg Asn Ala Glu Met Lys Leu Asn Gly Asn Val Val Thr Ala Ser Phe  
 130 135 140  
 Asn Val Glu Lys Ile Ala Gly Lys Glu Ile Asp Arg Val Phe Phe Met  
 145 150 155 160  
 Leu Gly Thr Thr Gln Tyr Ile Asn Asp Gly Glu His Asn Val Asp Arg  
 165 170 175  
 Phe Asp Asp Ala Asp Gly Ala Lys Met Ala Glu Ile Asn Val Thr Gly  
 180 185 190  
 Ala Arg Tyr Glu Phe Thr Pro Arg Asp Tyr Thr Asp Asn Lys Met Phe  
 195 200 205  
 Gln Thr Ala Leu Lys Arg Gly Thr Leu Phe Gly Arg Ile Cys Ile Trp  
 210 215 220  
 Pro Lys Gly Ser Asp Gln Gly Ile Tyr Ser Glu Val Ile Arg Leu Lys  
 225 230 235 240

<210> 5243  
 <211> 142  
 <212> PRT  
 <213> B.fragilis

<400> 5243  
 Leu Leu Ile Leu Tyr Ile Met Asn Lys Arg Phe Ile Ile Val Leu Leu  
 1 5 10 15  
 Ala Phe Val Phe Val Ser Met Ala Asn Ala Lys Ala Asp Ile Pro Lys  
 20 25 30  
 Val Trp Glu Val Asn Gly Val Tyr Thr Leu Val Glu Val Glu Ser Pro  
 35 40 45  
 Ser Gly Tyr Gly Leu Ile Lys Ser Ile Thr Ile Gly Asn Glu Tyr Ala  
 50 55 60  
 Tyr Asn Ser Thr Glu Ile Lys Ile Val Val Ile Asp Gly Val Asn Ser

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<210> 5244
<211> 420
<212> PRT
<213> B.fragilis
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Glu 1	Ile	Pro	Pro	Phe 5	Gly	Gly	Ile	Phe	Ser 10	Ile	Met	Glu	Lys	Phe 15	Gly
Leu	Met	Leu	Phe	Thr	Arg	Asn	Gly	Leu	Thr	Leu	Gly	Lys	Arg	Cys	Thr
			20					25					30		
Ser	Phe	Phe	Gly	Tyr	Gln	Phe	Arg	Arg	Ile	Val	Arg	Ser	Leu	Met	Ser
		35					40					45			
Val	Tyr	Phe	Cys	Gly	Gly	Ser	Cys	Val	Glu	Asp	Val	Thr	Ser	Gln	Leu
	50					55					60				
Met	Arg	His	Leu	Ser	Tyr	His	Pro	Thr	Phe	Arg	Thr	Cys	Ser	Ser	Asp
65					70					75					80
Thr	Ile	Leu	Arg	Ala	Ile	Lys	Glu	Leu	Thr	Gln	Glu	Asn	Ile	Ser	Tyr
				85					90					95	
Thr	Ser	Asp	Gln	Gly	Lys	Thr	Tyr	Asp	Phe	Asn	Thr	Ala	Asp	Lys	Leu
			100					105					110		
Asn	Thr	Leu	Leu	Ile	Asn	Ala	Leu	Val	Ser	Thr	Gly	Glu	Leu	Lys	Glu
		115					120					125			
Ile	Glu	Glu	Tyr	Asp	Val	Asp	Phe	Asp	His	Gln	Phe	Leu	Glu	Thr	Glu
	130					135					140				
Lys	Tyr	Asp	Ala	Lys	Pro	Thr	Tyr	Lys	Lys	Phe	Leu	Gly	Tyr	Arg	Pro
145					150					155					160
Gly	Val	Tyr	Val	Ile	Gly	Asp	Lys	Ile	Val	Tyr	Ile	Glu	Asn	Ser	Asp
				165					170					175	
Gly	Asn	Thr	Asn	Val	Arg	Phe	His	Gln	Ala	Asp	Thr	His	Lys	Arg	Phe
			180					185					190		
Phe	Ala	Leu	Glu	Ser	Gln	Asn	Ile	Arg	Val	Asn	Arg	Phe	Arg	Ala	
		195					200				205				
Asp	Cys	Gly	Ser	Cys	Ser	Lys	Glu	Ile	Val	Ser	Glu	Ile	Glu	Lys	His
						215					220				
Cys	Lys	His	Phe	Tyr	Ile	Arg	Ala	Asn	Arg	Cys	Ser	Ser	Leu	Tyr	Asn
225					230					235					240
Asp	Ile	Phe	Ala	Leu	Arg	Gly	Trp	Lys	Thr	Glu	Glu	Ile	Asn	Gly	Ile
				245					250					255	
Gln	Phe	Glu	Leu	Asn	Ser	Ile	Leu	Val	Glu	Lys	Trp	Glu	Gly	Lys	Cys
			260					265					270		
Tyr	Arg	Leu	Val	Ile	Gln	Arg	Gln	Arg	Arg	Asn	Ser	Gly	Asp	Leu	Asp
		275					280					285			
Leu	Trp	Glu	Gly	Glu	Tyr	Thr	Tyr	Arg	Cys	Ile	Leu	Thr	Asn	Asp	Tyr
		290				295					300				
Lys	Ser	Ser	Thr	Arg	Asp	Ile	Val	Glu	Phe	Tyr	Asn	Leu	Arg	Gly	Gly
305					310					315					320
Lys	Glu	Arg	Ile	Phe	Asp	Asp	Met	Asn	Asn	Gly	Phe	Gly	Trp	Ser	Arg
				325					330					335	
Leu	Pro	Lys	Ser	Phe	Met	Ala	Glu	Asn	Thr	Val	Phe	Leu	Leu	Leu	Thr

[illegible]

340	345	350
Ala Leu Ile His Asn Phe Tyr Lys Thr Ile Met Ser Arg Leu Asp Thr		
355	360	365
Lys Ala Phe Gly Leu Lys Lys Thr Ser Arg Ile Lys Ala Phe Val Phe		
370	375	380
Arg Phe Ile Ser Val Pro Ala Lys Trp Ile Met Thr Ala Arg Gln Tyr		
385	390	395
Val Leu Asn Ile Tyr Thr Glu Asn Arg Ala Tyr Ala Lys Pro Phe Lys		
405	410	415
Thr Glu Phe Gly		
420		

<210> 5245  
 <211> 857  
 <212> PRT  
 <213> B.fragilis

<400> 5245

Arg Leu Lys Glu Ser Arg Phe Thr Gly Gln Arg Phe Arg Glu Ala Gln		
1	5	10
Glu Arg Asp Tyr Arg His Tyr Asp Arg Phe Val Glu Lys Ile Ile Pro		
20	25	30
Asp Ser Val Asn Phe Tyr Arg Thr Tyr Val Asn Tyr His Ser Phe Glu		
35	40	45
Arg Tyr Leu Glu Arg Leu Lys Trp Tyr Lys Arg Gly Leu Glu Lys Arg		
50	55	60
Trp Ala Ile Gln Asp Ala Arg Lys Arg Arg Pro Asp Pro Leu Leu Leu		
65	70	75
Arg Phe Asp Met Phe Asn Arg Gln Val Gly Arg Arg Asp Ser Leu Met		
85	90	95
Lys Ser Arg Met Leu Asp Asn Ser Gln Arg Met Ile Thr Arg Gln Trp		
100	105	110
Trp Arg Tyr Gly Arg Ala Trp Glu Arg Met Asn Asp Thr Leu Gln Phe		
115	120	125
Gln Ser Arg His Leu Leu Glu Arg Phe Arg Phe Phe Asn Asn Lys Trp		
130	135	140
Ala Asp Asn Ala Ala Phe Gln Ser Asp Gly Leu Ile Ala Arg Lys Asn		
145	150	155
Tyr Phe Arg Asp Lys Ala Leu Ser Thr Pro Met Trp Gln Ala Lys Arg		
165	170	175
Ala Leu Tyr Lys Ala Asp Pro Asp Ala Ala Ile Arg Ile Tyr Ala Ser		
180	185	190
Arg Phe Gly Tyr Phe Asn Asp Lys Met Glu Arg Leu Asp Ala Thr Leu		
195	200	205
Tyr Arg Tyr Tyr Arg Thr Lys Gly Ala Arg Ala Glu Ser Arg Glu Gly		
210	215	220
Val Arg Phe Leu Arg Ala Phe Met Val Gly Arg Asp Thr Thr Leu Ser		
225	230	235
Tyr Leu Asn Arg Asn Gln Leu Thr Glu Lys Tyr Ile Arg Arg Tyr Glu		
245	250	255
Lys Val Lys Asn Phe Phe Pro Met Phe His Phe Arg Arg Pro Asp Pro		
260	265	270
Asp Thr Leu Ser Pro Leu Trp Glu Thr Arg Thr Arg Ile Asp Thr Met		
275	280	285
Gln Thr Arg His Thr Leu Leu Ser Lys Leu Ser Lys Glu Asp Ile Tyr		
290	295	300
Glu Tyr Tyr Val Arg Gln Gln Gln Gly Val Ser Asp Arg Gly Met Ile		
305	310	315
Gly Pro Phe Arg Gly Leu Leu Pro Leu Tyr Thr Tyr His Arg Asp Leu		

			325					330				335		
Pro	Asp	Ser	Ile	Val	Leu	Arg	Val	Pro	Gly	Arg	Lys	Thr	Arg	Arg
			340					345					350	
Phe	Glu	Leu	Ser	Arg	Phe	Asp	Ser	Ala	Thr	Thr	Val	Asn	Arg	Tyr
		355					360					365		
Gly	Arg	Tyr	Glu	Phe	Leu	Arg	Ser	Thr	Tyr	Pro	Gln	Tyr	His	Leu
	370					375					380			
Arg	Lys	Leu	Tyr	Asn	Ile	His	Pro	Pro	Ala	Leu	Arg	His	Ala	Ala
385					390						395			400
Gln	Ala	Ser	Tyr	Glu	Arg	Leu	Ala	Arg	Ile	Asn	Ser	Leu	Asp	Ser
			405					410					415	
Thr	Ser	Leu	Ile	Lys	Met	Phe	Tyr	Asn	Thr	Gln	Lys	Ile	Ala	Arg
		420						425					430	
Glu	Ala	Arg	Lys	Ala	Met	Lys	Asp	Thr	Lys	Tyr	Arg	Asp	Ile	Val
	435						440					445		
Phe	Pro	Phe	Asn	Pro	Glu	Ala	Gln	Leu	Asp	Thr	Val	Ile	Tyr	Ala
	450					455					460			
Asp	Gln	Val	His	Phe	Leu	Tyr	Ser	Gln	Lys	Val	Pro	Ala	Asp	Glu
465					470					475				480
Ser	Ala	Arg	Met	Lys	Val	Tyr	Val	Val	Gly	Asp	Val	Leu	Asn	Ser
			485						490					495
Gly	Ser	Arg	Phe	Ser	Leu	Pro	Tyr	Ser	Asp	Thr	Leu	Thr	Tyr	Leu
		500						505					510	
Ser	Ser	Met	Thr	Lys	Phe	Val	Asp	Arg	Thr	Pro	Arg	Phe	Val	Arg
		515					520					525		
Ile	Val	Thr	Arg	Asp	Ala	Glu	Ala	Asn	Ala	Ser	Val	Asn	Phe	Tyr
	530					535					540			
Pro	Lys	Asn	Ser	Phe	Arg	Met	Asp	Glu	Thr	Ile	Asp	Ile	Asn	Arg
545					550					555				560
Gly	Val	Lys	Gln	Val	His	Asn	Leu	Thr	Leu	Ala	Leu	Met	Thr	Asp
			565					570						575
Val	Tyr	Ile	Ile	Asp	Ser	Leu	Thr	Leu	Leu	Ala	Thr	Ser	Ser	Pro
		580						585					590	
Gly	Asn	Trp	His	Val	Asn	Gly	Glu	Ile	Ser	Arg	Lys	Arg	Ala	Glu
	595					600						605		
Ile	Arg	Asn	Ile	Leu	Val	Glu	Asp	Phe	Lys	Leu	Leu	Tyr	Asp	Ser
	610					615					620			
Ala	Ile	Gly	Ala	Ala	Ile	Glu	Met	Asp	Glu	Thr	Gly	Asn	Ile	Ile
625					630					635				640
Gln	Glu	Met	Lys	Asp	Gly	Ile	Pro	Asn	Leu	Pro	Glu	Leu	Ile	Lys
			645						650					655
Arg	Thr	Val	Pro	Glu	Gly	Trp	Glu	Lys	Leu	Arg	Arg	Leu	Ile	Val
		660						665					670	
Asp	Lys	Asn	Phe	Gln	Gly	Asn	Lys	Gly	Ala	Ile	Leu	Arg	Ile	Ile
	675						680					685		
Arg	Glu	Gln	Glu	Pro	Asp	Arg	Arg	Glu	Trp	Leu	Ile	Lys	Ser	Gln
	690					695					700			
Lys	Thr	Glu	Tyr	Ala	Tyr	Met	Leu	Asp	Lys	Leu	Tyr	Pro	Ala	Val
705					710					715				720
Arg	Val	Asp	Phe	Leu	Phe	Ser	Leu	Ser	Arg	Arg	Gly	Met	Arg	Gln
			725						730					735
Thr	Leu	Tyr	Thr	Asn	Glu	Pro	Asp	Thr	Met	Tyr	Ala	Arg	Ala	Val
		740						745					750	
Tyr	Leu	Glu	Lys	Arg	Lys	Tyr	Glu	Gln	Ala	Leu	Glu	Ile	Leu	Arg
		755					760					765		
Tyr	Glu	Asp	Val	Asn	Thr	Ala	Ile	Ala	Tyr	Met	Ser	Leu	Gly	Tyr
	770					775					780			
Lys	Ala	Ala	Leu	Arg	Ile	Leu	Glu	Gln	Ser	Ser	Gln	Thr	Ala	Glu
785					790				795					800

325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800







35	40	45
Val Phe Glu Leu Gln Cys	Ala Ser Thr Ala Ala	Leu Pro Ala Ser Asp
50	55	60
Lys Ile Gly Ser Gln Phe	Cys Glu Val Gln Gly	Val Arg Gly Ser Gly
65	70	75
Gln Trp Asp Leu Gly	Trp Gly Trp His Met	Gly Thr Glu Leu Met Gly
85	90	95
Glu Ala Phe Glu Pro Gly	Asp Pro Arg Lys Asp	Ala Thr Leu Leu Tyr
100	105	110
Phe Arg Arg Ser Asp Thr	Asp Pro Ile Thr Pro	Glu Asn Thr Asn Lys
115	120	125
Pro Tyr Gly Glu Ser Pro	Val Ser Gln Ala Asp	Gly Thr Tyr Phe Asn
130	135	140
Lys Lys Ala Tyr Thr Asn	Pro Ala Leu Arg Glu	Glu Phe Thr Arg His
145	150	155
Gly Phe Trp Val Asn Ile	Arg Ile Ile Arg Tyr	Gly Asp Val Val Leu
165	170	175
Met Ala Ala Glu Ser Ala	Asn Glu Leu Gly Lys	Thr Gly Glu Ala Ser
180	185	190
Asn Tyr Leu Glu Met Val	Arg Ala Arg Ala Arg	Gly Asn Asn Pro Asp
195	200	205
Ile Leu Pro Lys Val Thr	Ser Leu Asp Gln Thr	Val Leu Arg Asp Ala
210	215	220
Ile Arg His Glu Arg Arg	Val Glu Leu Gly Leu	Glu Ser Gly Arg Phe
225	230	235
Tyr Asp Leu Val Arg Trp	Gly Ile Ala Ser Gln	Val Leu His Ala Ala
245	250	255
Gly Lys Thr Gly Tyr Gln	Pro Lys Asn Ala Leu	Leu Pro Leu Ser Gln
260	265	270
Asp Glu Ile Asp Lys Ser	Lys Ser Val Leu Val	Gln Asn Pro Asp Tyr
275	280	285
Leu Glu His Thr Thr Glu		
290		

&lt;210&gt; 5250

&lt;211&gt; 493

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5250

Ser Thr Asn Thr Phe Met	Asn Gln Lys Leu Leu	Phe Ser Ser Ala Leu
1	5	10
Leu Val Gly Ile Ala Gly	Thr Gln Gln Ala Leu	Ala Gln Lys Lys Lys
20	25	30
Val Gln Asp Gln Lys Arg	Pro Asn Val Val Phe	Ile Leu Ala Asp Asp
35	40	45
Leu Gly Phe Gly Asp Leu	Ser Cys Tyr Gly Gln	Glu Lys Phe Glu Thr
50	55	60
Pro Asn Ile Asp Lys Leu	Ala Gln Glu Gly Met	Arg Phe Thr Gln Cys
65	70	75
Tyr Ser Gly Thr Thr Val	Ser Ala Pro Ser Arg	Ser Cys Leu Leu Thr
85	90	95
Gly Thr His Ser Gly His	Thr Ala Ile Arg Gly	Asn Val Glu Leu Asp
100	105	110
Pro Glu Gly Gln Phe Pro	Leu Pro Ala Asp Ala	Gln Thr Ile Phe His
115	120	125
Asp Phe Gln Asn Ala Gly	Tyr Lys Thr Gly Ala	Phe Gly Lys Trp Gly
130	135	140
Leu Gly Phe Ile Gly Ser	Thr Gly Asp Pro Lys	Lys His Gly Ile Asp

145 150 155 160  
 Glu Phe Tyr Gly Tyr Asn Cys Gln Leu Leu Ala His Ser Tyr Tyr Pro  
 165 170 175  
 Asp His Leu Trp Asp Asn Asp Lys Arg Val Glu Leu Lys Asp Asn Thr  
 180 185 190  
 Leu Asp Val Gln Tyr Gly Lys Gly Thr Tyr Ser Gln Asp Leu Ile His  
 195 200 205  
 Ser Lys Ala Leu Asp Phe Leu Asp Arg Met Gly Lys Ser Gly Glu Ser  
 210 215 220  
 Phe Cys Met Trp Tyr Pro Thr Ile Ile Pro His Ala Glu Leu Ile Val  
 225 230 235 240  
 Pro Glu Asp Ser Ile Ile Lys Lys Phe Arg Gly Lys Tyr Pro Glu Lys  
 245 250 255  
 Pro Phe His Gly Thr Glu Pro Gly Asn Pro Ala Phe Arg Lys Gly Gly  
 260 265 270  
 Tyr Cys Ser Gln Phe Tyr Pro His Ala Thr Phe Ala Ala Met Val Tyr  
 275 280 285  
 Arg Leu Asp Val Tyr Val Gly Gln Ile Val Gln Lys Leu Lys Glu Met  
 290 295 300  
 Gly Val Tyr Asp Asn Thr Ile Ile Ile Phe Ala Ser Asp Asn Gly Pro  
 305 310 315 320  
 His Met Glu Gly Gly Ala Asp Pro Asp Phe Phe Asn Ser Asn Gly Ile  
 325 330 335  
 Trp Arg Gly Tyr Lys Arg Asp Leu Tyr Glu Gly Gly Ile Arg Val Pro  
 340 345 350  
 Met Ile Ile Ser Trp Pro Gly Arg Val Gln Pro Ser Thr Gln Thr Asp  
 355 360 365  
 Phe Met Cys Ser Phe Trp Asp Val Met Pro Thr Phe Arg Glu Ile Leu  
 370 375 380  
 Asn Pro Lys Ala Lys Asn Gln Gln Met Asp Gly Val Ser Leu Leu Pro  
 385 390 395 400  
 Leu Leu Glu Asn Arg Lys Gly Gln Lys Glu His Glu Tyr Leu Tyr Phe  
 405 410 415  
 Glu Phe Gln Glu Met Asn Gly Arg Gln Ala Val Arg Lys Gly Pro Trp  
 420 425 430  
 Lys Leu Val His Met Asn Val Arg Gly Lys Asn Pro Tyr Tyr Glu Leu  
 435 440 445  
 Tyr Asn Leu Asn Ser Asp Pro Ser Glu Arg His Asn Val Leu Asn Gln  
 450 455 460  
 Tyr Pro Glu Lys Val Thr Glu Leu Lys Ala Ile Met Gln Ser Ser His  
 465 470 475 480  
 Ile Pro Asn Pro Asn Phe Pro Leu Leu Pro Gly Glu Lys  
 485 490

&lt;210&gt; 5251

&lt;211&gt; 550

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5251

Thr Met Asn Lys Lys Leu Leu Ser Arg Leu Ala Pro Gly Leu Phe Ala  
 1 5 10 15  
 Val Val Leu Phe Thr Ala Cys Arg Pro Ala Ala Thr Val Lys Gly Asn  
 20 25 30  
 Leu Asp Val Ile Pro Gln Pro Gln Glu Ile Val Leu Ala Arg Asp Thr  
 35 40 45  
 Thr Pro Phe Ile Ile Asp Arg Ser Thr Thr Ile Val Tyr Pro Ala Thr  
 50 55 60  
 Asn Glu Lys Met His Arg Thr Ala Asp Phe Leu Ala Thr Phe Ile Lys

65					70					75					80
Glu	Met	Thr	Gly	Thr	Glu	Val	Arg	Val	Ser	Asp	Lys	Glu	Lys	Ser	Ser
				85					90					95	
Asn	Ala	Ile	Ile	Leu	Ala	Val	Asp	Ser	Thr	Met	Gly	His	Pro	Glu	Gly
			100					105					110		
Tyr	Lys	Leu	Gln	Ile	Thr	Pro	Glu	Lys	Val	Leu	Leu	Thr	Gly	Gly	Ser
		115					120					125			
Glu	Ala	Gly	Val	Phe	Tyr	Gly	Ile	Gln	Thr	Ile	His	Lys	Ala	Leu	Pro
	130					135				140					
Ile	Leu	Lys	Asp	Gly	Lys	Val	Ala	Ala	Ala	Leu	Pro	Ala	Gly	Thr	Val
145				150					155						160
Thr	Asp	Phe	Pro	Arg	Phe	Arg	Tyr	Arg	Gly	Phe	Met	Ile	Asp	Val	Gly
				165					170					175	
Arg	His	Phe	Phe	Pro	Val	Ser	Tyr	Leu	Lys	Gln	Met	Ile	Asp	Leu	Met
			180				185					190			
Ala	Leu	His	Asn	Ile	Asn	Tyr	Phe	His	Trp	His	Leu	Thr	Glu	Asp	Gln
		195				200					205				
Gly	Trp	Arg	Ile	Glu	Ile	Lys	Lys	Tyr	Pro	Lys	Leu	Thr	Glu	Ile	Gly
	210					215					220				
Ser	Lys	Arg	Asp	Ser	Thr	Ile	Ile	Asp	Trp	Glu	Thr	Lys	Lys	Phe	Asp
225				230					235						240
Gly	Lys	Pro	His	Ser	Gly	Phe	Tyr	Thr	Gln	Asp	Glu	Ala	Arg	Glu	Ile
				245					250					255	
Val	Arg	Tyr	Ala	Ala	Asp	Arg	Phe	Ile	Thr	Val	Val	Pro	Glu	Ile	Asp
			260				265						270		
Leu	Pro	Gly	His	Thr	Thr	Ala	Ala	Leu	Ala	Ser	Tyr	Pro	Glu	Leu	Gly
		275					280					285			
Cys	Thr	Gly	Gly	Pro	Tyr	Lys	Val	Leu	Cys	Ser	Phe	Gly	Val	Phe	Pro
	290					295				300					
Asp	Val	Leu	Cys	Ala	Gly	Asn	Asp	Gln	Thr	Leu	Gln	Phe	Thr	Lys	Asp
305				310					315						320
Val	Leu	Asp	Glu	Ile	Met	Asp	Ile	Phe	Pro	Ser	Glu	Tyr	Ile	His	Ile
				325					330					335	
Gly	Gly	Asp	Glu	Cys	Pro	Lys	Ser	Arg	Trp	Glu	Lys	Cys	Pro	Lys	Cys
			340					345					350		
Gln	Ala	Lys	Ile	Lys	Glu	Leu	Gly	Ile	Lys	Ala	Leu	Pro	Lys	His	Ser
		355					360					365			
Lys	Glu	Asn	Gln	Leu	Gln	Thr	Phe	Met	Ser	Glu	Leu	Glu	Lys	Glu	
	370					375				380					
Ile	Asn	Ala	His	Gly	Arg	Met	Leu	Gly	Trp	Asp	Glu	Val	Leu	Glu	
385				390				395							400
Gly	Gly	Leu	Thr	Pro	Asn	Ser	Thr	Ile	Met	Ser	Trp	Arg	Gly	Ile	Gln
				405				410						415	
Gly	Gly	Ile	Glu	Ala	Ala	Arg	Gln	His	His	Asp	Val	Ile	Met	Thr	Pro
			420				425					430			
Ile	Gln	Arg	Leu	Tyr	Phe	Ser	Asn	Pro	Arg	Ile	Asn	Lys	Met	Thr	Gly
		435					440					445			
Phe	Glu	Trp	Met	Asn	Arg	Val	Tyr	Asn	Phe	Glu	Pro	Val	Pro	Ala	Glu
	450					455				460					
Leu	Thr	Asp	Ala	Glu	Lys	Lys	Phe	Val	Ile	Gly	Thr	Gln	Gly	Cys	Ile
465					470				475						480
Trp	Thr	Glu	Trp	Thr	Ala	Asp	Ser	Thr	Lys	Met	Glu	Trp	Gln	Ile	Leu
				485				490						495	
Pro	Arg	Met	Ala	Ala	Leu	Ser	Glu	Ile	Gln	Trp	Thr	Leu	Pro	Glu	His
			500				505					510			
Lys	Asn	Phe	Glu	Arg	Phe	Met	Glu	Arg	Leu	Pro	Glu	Met	Leu	Lys	Ile
		515					520				525				
Tyr	Ser	Ser	Leu	Asp	Tyr	Gly	Tyr	Arg	Glu	Asp	Val	Phe	Ala	Ala	Asp
	530					535					540				

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Val	Val	Ser	Ile	Thr	Gly	Phe	Thr	Arg	Glu	Ser	Ile	Leu	Leu	Ser	Val
				405					410					415	
Phe	Ser	Arg	Gly	Leu	Phe	Val	Tyr	Asn	Lys	Glu	Asn	Gly	Lys	Arg	Lys
			420					425					430		
Pro	Leu	Pro	Ile	Asp	His	Pro	Asp	Leu	Lys	Gln	Tyr	Ile	Tyr	Tyr	Ser
		435					440					445			
Gly	Met	Ala	Val	Asn	Ile	Tyr	Gln	Asp	Glu	Pro	Gly	Ser	Val	Leu	Leu
	450					455					460				
Leu	Ala	Gly	His	Thr	Tyr	Arg	Tyr	Asp	Ile	Gly	Ser	Gln	Lys	Ile	Arg
465					470					475					480
Val	Val	Asn	Glu	Glu	Glu	Gly	Met	Glu	Ile	Ala	Gly	Ser	Met	Asn	Ala
				485					490						495
Ile	Ala	His	Asn	Glu	Arg	Phe	Thr	Tyr	Leu	His	Asp	Ser	Arg	Thr	Leu
			500					505					510		
Tyr	Glu	Leu	Asp	Arg	Thr	Gly	Asn	Arg	Leu	Lys	Lys	Leu	Phe	Ser	Cys
	515						520					525			
Thr	Gly	Asp	Thr	Leu	Leu	Tyr	Ser	Val	Ser	Met	Asp	Glu	Lys	Gly	Asp
	530					535					540				
Phe	Trp	Ile	Gly	Ser	Asn	Thr	Gly	Leu	Gly	Gln	Tyr	Ser	Ile	Arg	Thr
545					550					555					560
Arg	Gln	Tyr	His	Pro	Leu	Ile	Thr	Ser	Leu	Phe	Gly	Glu	Ala	Ser	Ser
				565					570					575	
Val	Ile	Cys	Asp	His	Arg	Gly	Lys	Val	Trp	Ile	Gly	Ala	Asp	His	Met
			580					585					590		
Leu	Phe	Ala	Trp	Met	Leu	Gln	Ser	Arg	Lys	Phe	Ile	Leu	Phe	Gly	Glu
		595					600					605			
Ser	Asp	Gly	Val	Ile	Pro	Asn	Glu	Tyr	Leu	Ala	Lys	Pro	Arg	Leu	Val
	610					615					620				
Ser	Gly	Lys	Gly	Glu	Val	Tyr	Met	Gly	Gly	Val	Asn	Gly	Leu	Leu	Cys
625					630					635					640
Ile	Asp	Asn	Arg	Phe	Pro	Ala	Thr	Ser	Ser	Asn	Tyr	Pro	Glu	Val	Val
				645					650					655	
Leu	Thr	Asp	Val	Arg	Val	Asn	Gly	Glu	Pro	Ala	Thr	Asn	Arg	Thr	Ala
		660					665						670		
Gly	Asn	Pro	Asp	Lys	Leu	Thr	Leu	Pro	Gln	Asp	Ser	Arg	Ala	Ile	Thr
	675						680					685			
Leu	Arg	Val	Met	Ser	His	Glu	Glu	Asp	Ile	Phe	Arg	Lys	Lys	Arg	Tyr
	690					695					700				
Arg	Tyr	Arg	Ile	Asp	Gly	Leu	Asn	Glu	Glu	Pro	Ile	Glu	Ser	Tyr	Asp
705					710					715					720
Pro	Glu	Leu	Val	Ile	Arg	Ser	Leu	Pro	Ala	Gly	Asn	Tyr	Arg	Ile	Gln
				725					730					735	
Ala	Ala	Cys	Ser	Thr	Gln	Asn	Gly	Asp	Trp	Thr	Pro	Phe	His	Pro	Ile
			740					745					750		
Leu	Ser	Leu	Thr	Ile	Leu	Pro	Pro	Trp	Tyr	Arg	Ser	Gly	Trp	Phe	Ile
		755					760					765			
Ile	Cys	Leu	Leu	Leu	Phe	Val	Ser	Gly	Gly	Ile	Thr	Ala	Ile	Ile	Phe
	770					775					780				
Ala	Ile	Leu	Arg	Arg	Arg	Lys	Asn	Arg	Leu	Lys	Trp	Glu	Leu	Lys	Glu
785					790					795					800
Arg	Glu	Leu	Gln	Glu	Tyr	Glu	Glu	Lys	Ile	Arg	Phe	Leu	Val	Asn	Val
				805					810					815	
Ser	Asn	Glu	Leu	Leu	Pro	Ser	Phe	Thr	Glu	Lys	Gly	Glu	Arg	Glu	Leu
		820						825					830		
Gln	Ile	Val	Glu	Leu	Ile	Arg	Asn	Arg	Leu	Arg	Asn	Gly	Glu	Lys	Ser
		835					840					845			
Lys	Ala	Pro	Ala	Glu	Ile	Ala	Ser	Ser	Pro	Asn	Ile	Val	Lys	Glu	Glu
	850					855					860				
Leu	Ser	Gln	Pro	Asp	Glu	Thr	Phe	Leu	Arg	Lys	Leu	Asn	Gln	Leu	Ile

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865 870 875 880  
 Thr Asp His Leu Asp Ser Pro Glu Leu Asp Val Thr Phe Leu Cys Thr  
 885 890 895  
 Glu Met Gly Leu Ser Arg Ala Ser Leu Tyr Asn Lys Leu Lys Ala Met  
 900 905 910  
 Thr Asn Met Gly Ala Asn Asp Tyr Ile Asn Lys Phe Arg Met Glu Lys  
 915 920 925  
 Ala Ile Gln Leu Ile Ser Thr Thr Asp Leu Thr Phe Thr Glu Ile Ala  
 930 935 940  
 Glu Lys Ile Gly Phe Thr Thr Ser Arg Tyr Phe Ser Thr Ser Phe Lys  
 945 950 955 960  
 Gln Tyr Thr Gly Glu Thr Pro Thr Gln Tyr Lys Glu Lys Ile Arg Lys  
 965 970 975  
 Ser Ser Lys Val  
 980

<210> 5253  
 <211> 786  
 <212> PRT  
 <213> B.fragilis

<400> 5253  
 Phe Leu Asn Glu Gln His Met Arg Lys Leu Phe Phe Pro Leu Leu Leu  
 1 5 10 15  
 Phe Val Ser Gly Leu Leu Ser Ala Gln Thr Glu Ile Thr Leu Tyr Val  
 20 25 30  
 Ser Pro Ser Gly Ser Asp His His Pro Gly Thr Ala Glu Lys Pro Met  
 35 40 45  
 Ala Thr Leu Glu Tyr Ala Trp Lys Lys Ala Ser Arg Gln Ala Gly Arg  
 50 55 60  
 Arg Ser Ile Thr Ile Tyr Cys Glu Gly Thr Asn Tyr Leu Ser Ala Pro  
 65 70 75 80  
 Ile Leu Ile Thr Asn Glu Thr Ser Gly Thr Pro Glu His Pro Ile Arg  
 85 90 95  
 Phe Ser Ser Tyr Pro Gly Gln Lys Ala Val Ile Ser Gly Ser Arg Ile  
 100 105 110  
 Leu Arg Asn Leu Arg Trp Lys Glu Tyr Lys Asn Gly Ile Met Gln Ala  
 115 120 125  
 Lys Val Glu Glu Glu Leu Ile Pro Asp Gln Leu Phe Val Asn Gly Lys  
 130 135 140  
 Lys Gln Ile Ser Ala Arg Tyr Pro Asn Phe Asp Pro Asp Ile Arg Ile  
 145 150 155 160  
 Phe Asn Gly Tyr Ala Ala Asp Ala Cys Ser Pro Glu Arg Val Lys Asn  
 165 170 175  
 Trp Ser Asn Pro Ala Gly Gly Tyr Leu His Ala Met His Ser Arg Glu  
 180 185 190  
 Trp Gly Gly Tyr Gln Tyr Ser Ile Glu Gly Lys Asp Ala Lys Gly Glu  
 195 200 205  
 Leu Ile Leu Lys Gly Gly Phe Gln Asn Asn Arg Gln Met Gly Met His  
 210 215 220  
 His Thr Tyr His Met Val Glu Asn Ile Phe Glu Glu Leu Asp Ala Glu  
 225 230 235 240  
 Gly Glu Trp Tyr Phe Asp Lys Glu Thr His Thr Leu Tyr Phe Tyr Pro  
 245 250 255  
 Pro Arg Glu Leu Asp Leu Gln Thr Ala Leu Phe Glu Val Pro Gln Ala  
 260 265 270  
 Glu Asn Leu Phe Ile Leu Lys Gly Lys Thr Gly Ser Pro Val Arg His  
 275 280 285  
 Val Ser Val Asp His Leu Glu Leu Thr Gln Thr Leu Arg Thr Phe Met









130	135	140
Thr Gly Cys Phe Gly Lys Trp Gly Leu Gly Ala Pro Gly Thr Glu Gly		
145	150	155
Thr Pro Asn Lys Gln Gly Phe Asp Ser Phe Tyr Gly Tyr Asn Cys Gln		160
	165	170
Arg Gln Ala His Ser Tyr Tyr Pro Ala Phe Leu Tyr Lys Asn Glu Asp		175
	180	185
Arg Val Tyr Leu Ala Asn Lys Val Leu Asp Pro His Thr Thr Lys Leu		190
	195	200
Asp Ala Gly Ala Asp Pro Arg Asp Glu Ala Ala Tyr Ala Lys Phe Ser		205
	210	215
Gln Lys Glu Tyr Ala Asn Asp Leu Ile Phe Asp Glu Leu Ile Ser Phe		220
225	230	235
Val Gly Gln Asn Arg Lys Lys Pro Phe Phe Leu Met Trp Thr Thr Pro		240
	245	250
Leu Pro His Val Ser Leu Gln Ala Pro Glu Lys Trp Val Lys Tyr Tyr		255
	260	265
Val Gly Lys Phe Gly Asp Glu Ala Pro Tyr Ile Gly Lys Ala Gly Tyr		270
	275	280
Met Pro Cys Arg Tyr Pro His Ala Thr Tyr Ala Ala Met Ile Ser Tyr		285
	290	295
Phe Asp Glu Gln Ile Gly Lys Leu Ile Glu Lys Leu Lys Lys Glu Arg		300
305	310	315
Leu Tyr Asp Asn Thr Val Ile Met Phe Thr Ser Asp Asn Gly Pro Thr		320
	325	330
Phe Asn Gly Gly Ser Asp Ser Pro Trp Phe Asp Ser Gly Gly Pro Phe		335
	340	345
Arg Ser Glu Tyr Gly Trp Gly Lys Cys Phe Val His Glu Gly Gly Ile		350
	355	360
Arg Ile Pro Ala Ile Val Thr Trp Pro Gly Lys Ile Lys Pro Ser Thr		365
	370	375
Gln Ser Asp His Ile Cys Gly Phe Gln Asp Val Met Pro Thr Leu Ala		380
385	390	395
Asp Ile Val Asn Ile Ala Cys Pro Glu Thr Asp Gly Ile Ser Phe Leu		400
	405	410
Pro Ala Leu Leu Gly Glu Thr Glu Arg Gln Lys Glu His Glu Tyr Leu		415
	420	425
Tyr Trp Glu Tyr Pro Asp Pro Thr Ile Gly Leu Lys Ala Ile Arg Met		430
	435	440
Gly Lys Trp Lys Gly Ile Val Asn Asn Ile Arg Lys Gly Asn Ser Thr		445
	450	455
Met Glu Leu Tyr Asp Leu Glu Ser Asp Leu Arg Glu Glu His Asp Val		460
465	470	475
Ala Ala Glu His Pro Asp Ile Val Arg Lys Leu Thr Arg Leu Met Glu		480
	485	490
Lys Ser His Thr Glu Pro Glu Asn Pro Lys Phe Arg Phe		495
	500	505

&lt;210&gt; 5257

&lt;211&gt; 423

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5257

Val His Gly Leu Phe Gln Pro Arg Gly Glu Asp Asp Ala Gly Phe		
1	5	10
Ile Tyr Ala Ile Gln Ser Leu Arg Gln Trp Asn Thr Gly Glu Glu Arg		15
	20	25
Gly Leu Ile Phe Pro Cys Val Glu Ile Thr Asp Phe Pro Arg Val Lys		30

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099
Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099

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<400> 5258
Asn Arg Ile Met Glu Gln Tyr Thr Phe Asn Ile Ala Gly Gly Val Ala
1           5           10           15
Arg Asn Pro Leu Val Arg Leu Ala Gln Pro Val Thr Ala Gln Ile Ala
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[illegible]

<210> 5259  
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<400> 5259

Glu Lys Ile Ile Ser Val Glu Leu Cys Val Ile Cys Gly Glu Leu Lys  
 1 5 10 15  
 Thr Ile Thr Ile Met Asn Lys Ile Ile Glu Leu Leu Gly Asn Gln Ala  
 20 25 30  
 Glu Tyr Tyr Leu Asn His Thr Cys Lys Thr Ile Asp Lys Ser Leu Ile  
 35 40 45  
 His Val Pro Ser Pro Asp Thr Ile Asp Lys Ile Trp Ile Asp Ser Asp  
 50 55 60  
 Arg Asn Ile Gln Thr Leu Arg Ser Leu Gln Thr Leu Leu Gly His Gly  
 65 70 75 80  
 Arg Leu Ala Asn Thr Gly Tyr Val Ser Ile Leu Pro Val Asp Gln Asp  
 85 90 95  
 Ile Glu His Thr Ala Gly Ala Ser Phe Ala Pro Asn Pro Ile Tyr Phe  
 100 105 110  
 Asp Pro Glu Asn Ile Val Lys Leu Ala Ile Glu Gly Gly Cys Asn Ala  
 115 120 125  
 Val Ala Ser Thr Phe Gly Asn Leu Gly Ala Val Ala Arg Lys Tyr Ala  
 130 135 140  
 His Lys Ile Pro Phe Val Lys Leu Asn His Asn Glu Leu Leu Ser  
 145 150 155 160  
 Tyr Pro Asn Thr Tyr Asp Gln Val Leu Phe Gly Thr Val Lys Glu Ala  
 165 170 175  
 Trp Glu Met Gly Ala Val Ala Val Gly Ala Thr Ile Tyr Phe Gly Ser  
 180 185 190  
 Glu Gln Ser Arg Arg Gln Leu Val Glu Ile Ala Glu Ala Phe Asp Tyr  
 195 200 205  
 Ala His Glu Leu Gly Met Ala Thr Ile Leu Trp Cys Tyr Leu Arg Asn  
 210 215 220  
 Asn Glu Phe Lys Lys Asp Gly Ile Asp Tyr His Ala Ala Ala Asp Leu  
 225 230 235 240  
 Thr Gly Gln Ala Asn Arg Leu Gly Val Thr Ile Lys Ala Asp Ile Val  
 245 250 255  
 Lys Gln Lys Leu Pro Thr Asn Asn Gly Gly Phe Lys Ala Ile His Phe  
 260 265 270  
 Gly Lys Thr Asp Glu Arg Met Tyr Thr Glu Leu Thr Thr Asp His Pro  
 275 280 285  
 Ile Asp Leu Cys Arg Tyr Gln Val Ala Asn Gly Tyr Met Gly Arg Val  
 290 295 300  
 Gly Leu Ile Asn Ser Gly Gly Glu Ser His Gly Ala Ser Asp Leu Lys  
 305 310 315 320  
 Asp Ala Val Val Thr Ala Val Val Asn Lys Arg Ala Gly Gly Met Gly  
 325 330 335  
 Leu Ile Ser Gly Arg Lys Ala Phe Gln Lys Pro Met Asn Glu Gly Val  
 340 345 350  
 Glu Leu Leu His Ala Ile Gln Asp Val Tyr Leu Asp Ala Ser Val Thr  
 355 360 365  
 Ile Ala  
 370

<210> 5260  
 <211> 248  
 <212> PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5260

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Met Lys Lys Ile Val Leu Leu Arg His Gly Glu Ser Ala Trp Asn Lys
1          5          10          15
Glu Asn Arg Phe Thr Gly Trp Thr Asp Val Asp Leu Thr Glu Lys Gly
20          25          30
Ile Ala Glu Ala Cys Lys Ala Gly Glu Leu Leu Lys Glu Asn Gly Phe
35          40          45
Asn Phe Asp Lys Ala Tyr Thr Ser Tyr Leu Lys Arg Ala Val Lys Thr
50          55          60
Leu Asn Cys Val Leu Asp Arg Met Asp Gln Asp Trp Ile Pro Val Glu
65          70          75          80
Lys Ser Trp Arg Leu Asn Glu Lys His Tyr Gly Asp Leu Gln Gly Leu
85          90          95
Asn Lys Ser Glu Thr Ala Ala Lys Tyr Gly Asp Glu Gln Val Leu Ile
100         105         110
Trp Arg Arg Ser Tyr Asp Ile Ala Pro Asn Ala Leu Ser Glu Asp Asp
115         120         125
Pro Arg Asn Pro Arg Phe Glu Asn Arg Tyr Gln Glu Val Pro Asp Ala
130         135         140
Glu Leu Pro Arg Thr Glu Ser Leu Lys Asp Thr Ile Glu Arg Ile Met
145         150         155         160
Pro Tyr Trp Lys Cys Ile Ile Phe Pro Asn Leu Lys Thr Ala Asp Glu
165         170         175
Ile Leu Val Val Ala His Gly Asn Ser Leu Arg Gly Ile Ile Lys His
180         185         190
Leu Lys His Ile Ser Asp Glu Glu Ile Val Lys Leu Asn Leu Pro Thr
195         200         205
Ala Val Pro Tyr Val Phe Glu Phe Ser Asp Glu Leu Asn Leu Glu Lys
210         215         220
Asp Tyr Phe Leu Gly Asp Pro Glu Glu Ile Arg Lys Leu Met Glu Ala
225         230         235         240
Val Ala Asn Gln Gly Lys Lys Lys
245

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&lt;210&gt; 5261

&lt;211&gt; 768

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5261

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Lys Pro Leu Ser Ala Gly Glu Arg Leu Ser Asn Arg Ala Leu Asn His
1          5          10          15
Lys His Pro Phe Gly Ser Ser Arg Phe Ile Cys Glu Tyr Asn Glu Val
20          25          30
Tyr Leu Thr Leu His Thr Gln Cys Ile Phe His Asn Ile Asn Asn Asn
35          40          45
Thr Met Lys Lys Leu Leu Ala Thr Leu Leu Ile Leu Val Ala Cys Ile
50          55          60
His Val Asn Ala Gln Glu Ser Ile Gln Ile Arg Ile Ser Thr Asp Arg
65          70          75          80
Thr Asp Leu Ile Leu Glu Val Ala Pro Asp Gly Arg Leu Tyr Gln Ser
85          90          95
Tyr Leu Gly Asp Arg Leu Leu Asn Glu Gln Asp Leu Lys Asn Leu Ser
100         105         110
Gly Ser Ser Arg Gly Trp Glu Val Tyr Pro Gly Ser Gly Gly Glu Asp
115         120         125
Tyr Phe Glu Pro Ala Val Ala Ile Thr Asn Asn Asp Gly Asn Leu Ser

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Ser Leu Tyr His Tyr Asn Asn Gln Glu Phe Arg Leu Leu Pro Arg Phe  
 260 265 270  
 Thr Leu Asp Tyr Gly Gly His Glu Leu Thr Pro His Ser Phe Gly Glu  
 275 280 285  
 Leu Pro Asn His Phe Trp Gly Glu Ile Ser Tyr Pro Val Arg Leu Ser  
 290 295 300  
 Pro His Ser Ser Thr Thr Thr Pro Pro Glu Tyr Tyr Met Val Asp Lys  
 305 310 315 320  
 His Thr Leu Arg Gly Ala Phe Val Glu Ile Tyr Asn Asp Phe Leu Gly  
 325 330 335  
 Gly Ile Pro Ala Asp Trp Phe Phe Ser Ser His Asp Gly Tyr Tyr Val  
 340 345 350  
 Trp Asn Val Glu Pro Val Arg Leu Lys Gln Met Val Glu Asp Arg Leu  
 355 360 365  
 Ser Ser Gly Glu Ile Val Ser Asp Ser Asp Arg Arg Lys Leu Thr Glu  
 370 375 380  
 Leu Leu Arg Ser Thr Lys Glu Asn Asp Asn Asn Tyr Ile Phe Tyr Gly  
 385 390 395 400  
 Arg Leu Lys Cys Arg  
 405

<210> 5263

<211> 400

<212> PRT

<213> B.fragilis

<400> 5263

Leu Ile Phe Ala Thr Pro Leu Phe Tyr Glu Ile Ile His Leu Ser Gln  
 1 5 10 15  
 Cys Leu Phe Asn Phe Leu Gly Ile Ser Met Arg Leu Ile Tyr Phe Ile  
 20 25 30  
 Asn Ser Lys Tyr Asp Arg Asn Thr Cys Cys Cys Cys Met Ile Asn Gly  
 35 40 45  
 Phe Phe Gly Leu Gly His Tyr Ile Ile Ile Gly Ser Tyr Asn Asn Asn  
 50 55 60  
 Cys Asp Ile Gly His Leu Cys Thr Thr Gly Thr His Cys Ser Lys Cys  
 65 70 75 80  
 Leu Met Ser Arg Ser Ile Glu Glu Arg Asn Leu Thr Ser Ile Phe Gln  
 85 90 95  
 Cys Asn Met Ile Cys Thr Asn Met Leu Cys Asp Thr Ser Gly Phe Thr  
 100 105 110  
 Cys Asn Tyr Ile Cys Phe Thr Asn Val Val Lys Gln Arg Ser Phe Thr  
 115 120 125  
 Met Val Tyr Val Ser His Asp Cys Asn Asn Arg Ser Thr Met Phe Gln  
 130 135 140  
 Ile Phe Arg Arg Ile Phe Leu Phe Asn Asn Gly Leu Gly Tyr Phe Cys  
 145 150 155 160  
 Thr Asp Ile Phe Ser Leu Lys Ser Lys Phe Phe Ser His Lys Ile Asn  
 165 170 175  
 Arg Phe Cys Ile Gln Thr Leu Ile Asp Arg Asn His His Thr Asn Ala  
 180 185 190  
 His Thr Ser Ser Asp Asn Leu Ile Tyr Arg Tyr Val His His Ala Cys  
 195 200 205  
 Gln Phe Ile Ser Ser His Lys Phe Cys Gln Phe Gln Tyr Leu Ala Phe  
 210 215 220  
 Cys His Phe Leu Ile Phe Gln Phe Leu His Thr Val Gly Arg His Val  
 225 230 235 240  
 Thr Phe Phe Phe Thr Ile Phe Gly Thr Phe Val Leu Thr Phe Ala Cys  
 245 250 255

Gln Thr Ser Gln Arg Phe Phe Asn Leu Leu Cys Tyr Ile Phe Phe Ala  
 260 265 270  
 Tyr Phe Leu Leu Tyr Tyr Arg Leu Phe Glu Ala Val Phe Ile Ile Val  
 275 280 285  
 Ile Thr Val Ser Ile Leu Ser Ala Ala Thr Leu Leu Ile Ser Ser Thr  
 290 295 300  
 Val Ile Ile Arg Thr Leu Thr Val Trp Ser Arg Val Cys Lys Ile Arg  
 305 310 315 320  
 Ser Asn Ile Val His Ile Tyr Phe Phe Leu Ile Ile Val Asp Ala Ile  
 325 330 335  
 Thr Phe Leu Leu Thr Val Arg Ile Lys Val Phe Leu Thr Asn Asp Leu  
 340 345 350  
 Ser Leu Phe Thr Ile Phe Phe Thr Asp Phe Leu Asp Asp Gly Phe Leu  
 355 360 365  
 His Leu Phe Leu Leu Ile Leu Thr Lys Leu Phe Leu Leu Phe Thr Leu  
 370 375 380  
 Phe Pro Leu Phe Leu Phe Arg Phe Leu Leu Arg Thr Cys Arg Leu Ile  
 385 390 395 400

<210> 5264  
 <211> 174  
 <212> PRT  
 <213> B.fragilis

<400> 5264  
 Phe Asn Ala Ala Lys Ser Ile Cys Pro Ile Thr Leu Ile Leu Asp Thr  
 1 5 10 15  
 Asn Ser Val Gly Arg Ile Leu Asn Thr Pro Ser Ser Ser Phe Ser Thr  
 20 25 30  
 Gly Val Thr Gly Ala Ser Ala Thr Gly Phe Ser Ser Phe Phe Ser Val  
 35 40 45  
 Phe Ser Gly Asp Thr Thr Thr Phe Gly Ser Ser Phe Leu Thr Ser Ser  
 50 55 60  
 Thr Thr Phe Phe Ser Val Ser Thr Gly Phe Ser Thr Thr Thr Gly Phe  
 65 70 75 80  
 Gly Ser Ser Phe Thr Gly Phe Gly Ser Glu Val Ala Gly Val Thr Val  
 85 90 95  
 Thr Ser Ser Phe Thr Ser Ile Thr Thr Gly Leu Thr Ser Ser Ala  
 100 105 110  
 Thr Phe Phe Ser Ser Ala Ala Thr Gly Cys Gly Phe Gly Ser Ser Phe  
 115 120 125  
 Ile Gly Ser Phe Ser Thr Phe Arg Phe Ser Leu Ser Lys Ser Ile Phe  
 130 135 140  
 Pro Thr Gly Leu Asn Phe Gly Arg Thr Ser Ser Gly Met Thr Val Leu  
 145 150 155 160  
 Ile Thr Ser Ser Ala Thr Val Phe Ser Gly Ser Phe Leu Ser  
 165 170

<210> 5265  
 <211> 422  
 <212> PRT  
 <213> B.fragilis

<400> 5265  
 Ile Ile Met Ala Lys Lys Glu Glu Thr Ile Ser Leu Ile Asp Thr Phe  
 1 5 10 15  
 Ser Glu Phe Lys Glu Leu Lys Asn Ile Asp Arg Thr Thr Met Val Ser  
 20 25 30  
 Val Leu Glu Glu Ser Phe Arg Ser Val Ile Ala Lys Met Phe Gly Thr

35	40	45
Asp Glu Asn Tyr Asp Val Ile Val Asn Pro Asp Lys Gly Asp Phe Glu		
50	55	60
Ile Trp Arg Asn Arg Glu Val Val Ala Asp Glu Asp Leu Thr Asn Pro		
65	70	75
Asn Met Gln Ile Ser Leu Thr Glu Ala Gln Lys Ile Asp Ala Ser Tyr		
85	90	95
Glu Val Gly Glu Glu Val Thr Asp Glu Val Ile Phe Ala Lys Phe Gly		
100	105	110
Arg Arg Ala Ile Leu Asn Leu Arg Gln Thr Leu Ala Ser Lys Ile Leu		
115	120	125
Glu Leu Glu Lys Asp Ser Ile Tyr Asn Lys Tyr Ile Asp Lys Val Gly		
130	135	140
Thr Ile Ile Asn Ala Glu Val Tyr Gln Ile Trp Lys Lys Glu Met Leu		
145	150	155
Leu Leu Asp Asp Glu Gly Asn Glu Leu Leu Leu Pro Lys Thr Glu Gln		
165	170	175
Ile Pro Ser Asp Phe Tyr Arg Lys Gly Glu Thr Ala Arg Ala Val Val		
180	185	190
Ala Arg Val Asp Asn Lys Asn Asn Asn Pro Lys Ile Ile Leu Ser Arg		
195	200	205
Thr Ser Pro Val Phe Leu Gln Arg Leu Phe Glu Met Glu Val Pro Glu		
210	215	220
Ile Asn Asp Gly Leu Ile Thr Ile Lys Lys Ile Ala Arg Ile Pro Gly		
225	230	235
Glu Arg Ala Lys Ile Ala Val Glu Ser Tyr Asp Asp Arg Ile Asp Pro		
245	250	255
Val Gly Ala Cys Val Gly Val Lys Gly Ser Arg Ile His Gly Ile Val		
260	265	270
Arg Glu Leu Arg Asn Glu Asn Ile Asp Val Ile Asn Tyr Thr Ser Asn		
275	280	285
Ile Ser Leu Phe Ile Gln Arg Ala Leu Ser Pro Ala Lys Ile Ser Ser		
290	295	300
Ile Arg Leu Asn Glu Glu Glu Arg Lys Ala Glu Val Phe Leu Lys Pro		
305	310	315
Glu Glu Val Ser Leu Ala Ile Gly Lys Gly Gly Leu Asn Ile Lys Leu		
325	330	335
Ala Ser Met Leu Thr Glu Tyr Thr Ile Asp Val Phe Arg Glu Leu Asp		
340	345	350
Glu Asn Ala Gln Asp Glu Asp Ile Tyr Leu Asp Glu Phe Arg Asp Glu		
355	360	365
Ile Asp Gly Trp Val Ile Asp Ala Ile Lys Ala Ile Gly Ile Asp Thr		
370	375	380
Ala Lys Ser Val Leu Asn Ala Pro Arg Glu Met Leu Ile Glu Lys Thr		
385	390	395
Asp Leu Glu Glu Glu Thr Val Asp Glu Val Leu Arg Ile Leu Lys Ser		
405	410	415
Glu Phe Glu Asp Asn Glu		
420		

&lt;210&gt; 5266

&lt;211&gt; 284

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5266

Leu Pro Phe Tyr Tyr Tyr Ala Asp Gly Arg Lys Phe His Ile Thr Met
1 5 10 15
Val Gly Arg Gly Tyr Phe Trp Lys Arg Ile Asp Asn Glu Ile Ile Asp

	20		25		30
Lys Ile Met Leu Glu Ile Lys Asp Leu His Ala Ser Ile Asn Gly Lys					
35		40		45	
Glu Ile Leu Lys Gly Ile Asn Leu Thr Val Lys Pro Gly Glu Val His					
50		55		60	
Ala Ile Met Gly Pro Asn Gly Ser Gly Lys Ser Thr Leu Ser Ser Val					
65		70		75	80
Leu Val Gly Asn Pro Ala Phe Glu Val Thr Lys Gly Ser Ile Thr Phe					
	85		90		95
Tyr Gly Lys Asn Leu Leu Glu Leu Ser Pro Glu Asp Arg Ser His Glu					
	100		105		110
Gly Ile Phe Leu Ser Phe Gln Tyr Pro Val Glu Ile Pro Gly Val Ser					
	115		120		125
Met Val Asn Phe Met Arg Ala Ala Val Asn Glu Gln Arg Lys Tyr Lys					
	130		135		140
Gly Leu Pro Ala Leu Thr Ala Ser Glu Phe Leu Lys Leu Met Arg Glu					
145		150		155	160
Lys Arg Ala Val Val Glu Leu Asp Asn Lys Leu Ala Asn Arg Ser Val					
	165		170		175
Asn Glu Gly Phe Ser Gly Gly Glu Lys Lys Arg Asn Glu Ile Phe Gln					
	180		185		190
Met Ala Met Leu Glu Pro Arg Leu Ser Ile Leu Asp Glu Thr Asp Ser					
	195		200		205
Gly Leu Asp Ile Asp Ala Leu Arg Ile Val Ala Glu Gly Val Asn Lys					
	210		215		220
Leu Lys Thr Pro Asp Thr Ser Cys Ile Val Ile Thr His Tyr Gln Arg					
225		230		235	240
Leu Leu Asp Tyr Ile Lys Pro Asp Ile Val His Val Leu Tyr Lys Gly					
	245		250		255
Arg Ile Val Lys Thr Ala Gly Pro Glu Leu Ala Leu Glu Leu Glu Glu					
	260		265		270
Lys Gly Tyr Asp Trp Ile Lys Lys Glu Leu Gly Glu					
	275		280		

<210> 5267  
 <211> 64  
 <212> PRT  
 <213> B.fragilis

<400> 5267  
 Leu Trp Gly Tyr Trp Gln Gln Lys Pro Leu Tyr Thr Ser Leu Ala Val  
 1 5 10 15  
 Lys Leu Cys Pro Thr Val Thr Asp Ser Met Thr Val Ala Gln Ile Leu  
 20 25 30  
 Ala Phe Ile Ile Ile Trp Ile Ala Val Ala Ala Asn Leu Tyr Ile Gly  
 35 40 45  
 Gly Phe Ser Ile Asn Gln Gly Ile Gly Gly Gly Phe Thr Trp Leu Ala  
 50 55 60

<210> 5268  
 <211> 115  
 <212> PRT  
 <213> B.fragilis

<400> 5268  
 Tyr Lys Pro Leu Asn Glu Thr Arg Ile Met Leu Leu Ala Thr Thr Pro  
 1 5 10 15  
 Ile Ile Glu Gly Lys Arg Ile Thr Thr Tyr Tyr Gly Ile Val Ser Gly  
 20 25 30

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<210> 5269
<211> 553
<212> PRT
<213> B.fragilis
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Ile	Ser	Leu	Tyr	Ile	Pro	Thr	Thr	Gly	Gln	Gly	Tyr	Thr	Gly	Tyr	Phe
1				5					10						15
Thr	Leu	Gln	Lys	Gln	His	Leu	Met	Lys	Lys	Lys	Lys	Val	Thr	Thr	Tyr
			20					25					30		
Cys	Cys	Leu	Leu	Leu	Leu	Ala	Ser	Phe	Phe	Thr	Thr	Val	Thr	Ala	Gln
		35					40					45			
Asn	Thr	Asn	Thr	Pro	Met	Met	Gly	Trp	Ser	Ser	Trp	Asn	Thr	Phe	Arg
	50					55					60				
Val	His	Ile	Asn	Glu	Glu	Leu	Ile	Lys	Glu	Thr	Ala	Asp	Ala	Met	Val
65					70					75					80
Asn	Arg	Gly	Leu	Lys	Asp	Val	Gly	Tyr	Gly	Tyr	Val	Asn	Ile	Asp	Asp
				85					90					95	
Gly	Tyr	Phe	Gly	Gly	Arg	Asn	Ser	Glu	Gly	Arg	Leu	Phe	Ala	Asn	Lys
			100					105					110		
Lys	Lys	Phe	Pro	Asn	Gly	Met	Arg	Val	Leu	Ser	Asp	Tyr	Ile	His	Ser
		115					120					125			
Lys	Gly	Leu	Lys	Ala	Gly	Ile	Tyr	Ser	Asp	Ala	Gly	Ser	Asn	Thr	Cys
		130				135					140				
Gly	Ser	Ile	Tyr	Asp	Ala	Asp	Thr	Leu	Gly	Ile	Gly	Val	Gly	Leu	Trp
145					150					155					160
Lys	His	Asp	Asp	Ile	Asp	Cys	Gln	Thr	Phe	Leu	Lys	Asp	Trp	Gly	Tyr
				165					170					175	
Asp	Phe	Ile	Lys	Ile	Asp	Trp	Cys	Gly	Gly	Glu	Ala	Thr	Gly	Gln	Ser
			180					185					190		
Glu	Gln	Gln	Arg	Tyr	Thr	Asp	Ile	Tyr	Lys	Ala	Ile	Arg	Arg	Thr	Gly
			195				200					205			
Arg	Thr	Asp	Val	Arg	Tyr	Asn	Ile	Cys	Arg	Trp	Gln	Phe	Pro	Gly	Thr
	210					215					220				
Trp	Ala	Thr	Gln	Leu	Ala	Gly	Ser	Trp	Arg	Ile	His	Thr	Asp	Ile	Asn
225					230					235					240
Pro	Arg	Phe	Thr	Thr	Ile	Asp	Arg	Ile	Ile	Glu	Arg	Asn	Leu	Tyr	Leu
				245					250					255	
Ala	Pro	Tyr	Ala	Ser	Pro	Gly	His	Tyr	Asn	Asp	Met	Asp	Met	Leu	Glu
			260					265					270		
Val	Gly	Arg	Gly	Leu	Thr	Glu	Asp	Glu	Glu	Lys	Thr	His	Phe	Gly	Ile
		275					280					285			
Trp	Ser	Ile	Leu	Ser	Ser	Pro	Leu	Met	Ile	Gly	Cys	Asp	Leu	Arg	Thr
	290					295					300				
Ile	Pro	Glu	Lys	Thr	Leu	Ser	Ile	Ile	Thr	Asn	Lys	Glu	Val	Ile	Ala
305					310						315				320

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100											



Arg Leu Asn Pro Met Asp Thr Val Glu Arg Ser Gln Leu Ser Pro Ala  
 180 185 190  
 Glu Phe Glu Val Leu Lys Glu Ser Asp Leu Ser Val Leu Ile Ala Pro  
 195 200 205  
 Tyr Leu Ile Ile Gly Leu Val Ile Leu Ala Met Leu Phe Val Ile Arg  
 210 215 220  
 Ala Val Lys Met Pro Lys Asn Gly Asp Lys Asn His Asn Ile Asp Phe  
 225 230 235 240  
 Ile Pro Thr Leu Lys Arg Ile Phe Lys Ile Pro His Tyr Arg Glu Gly  
 245 250 255  
 Val Ile Ala Gln Phe Phe Tyr Val Gly Ala Gln Ile Met Cys Trp Thr  
 260 265 270  
 Phe Val Ile Gln Tyr Gly Thr Arg Leu Phe Met Ser Gln Gly Met Glu  
 275 280 285  
 Glu Lys Ala Ala Glu Val Leu Ser Gln Glu Tyr Asn Ile Ile Ala Met  
 290 295 300  
 Ile Ile Phe Cys Ile Ser Pro Phe Arg Val Tyr Ile Tyr Ser Ser Leu  
 305 310 315 320  
 Pro Glu Ser Gly Asp Ala Ser Gln Asp Ser Cys Asp Cys Gly Trp Cys  
 325 330 335  
 Phe Tyr Val Arg Cys Asp Phe Phe Ala Arg His Met Gly Ile Val Leu  
 340 345 350  
 Phe Ser Ser Cys Phe Gly Leu Tyr Val Thr Asn Val Ser His Asp Leu  
 355 360 365  
 Trp Pro Leu Leu Phe Val Val Trp Val Met Met Pro Asn Leu Gly Ala  
 370 375 380  
 Ala Gly Leu Ile Met Ala Ile Leu Gly Gly Ser Val Leu Pro Pro Leu  
 385 390 395 400  
 Gln Ala Cys Ile Ile Asp Gln His Thr Leu Leu Gly Met Pro Ala Val  
 405 410 415  
 Asn Leu Ser Phe Ile Leu Pro Phe Ile Cys Phe Val Val Ile Ile Ile  
 420 425 430  
 Tyr Gly His Arg Thr Cys Ala Arg Val Lys Lys Ile Lys Ala Ala Arg  
 435 440 445  
 Lys

&lt;210&gt; 5271

&lt;211&gt; 573

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5271

Ala Lys Arg His Ile Pro Leu Ile Arg Leu Ser Asn Trp Asn Arg Asn  
 1 5 10 15  
 Leu Thr Ser Leu Thr Lys Gly Leu Asn Phe Lys Ala Leu Val Ser Phe  
 20 25 30  
 Lys Asn Trp Ser Lys Thr Thr Val Asn Arg Ser Phe Ser Pro Tyr Phe  
 35 40 45  
 Tyr Glu Leu Gln Asn Pro Gln Glu Gln Glu Asp Gly Ser Tyr Leu Tyr  
 50 55 60  
 Asp Tyr Asn Ser Ile Ser Lys Gly Arg Thr Ala Leu Glu Thr Ser Thr  
 65 70 75 80  
 Ser Thr Thr Gly Asp Arg Leu Met Asn Leu Gln Ala Thr Leu Asn Tyr  
 85 90 95  
 Gln Arg Met Phe Gly Asp Lys His Asp Val Gly Ala Met Leu Val Tyr  
 100 105 110  
 Leu Gln Arg Glu Tyr Asn Leu Asn Asn Pro Asp Asn Asn Tyr Tyr Asn  
 115 120 125



Thr Leu Pro Glu Arg Asn Gln Gly Leu Ala Gly Arg Val Thr Tyr Ala  
 130 135 140  
 Tyr Asp Gly Arg Tyr Leu Ala Glu Phe Asn Phe Gly Tyr Asn Gly Ser  
 145 150 155 160  
 Glu Asn Phe Glu Lys Gly Ser Arg Tyr Gly Phe Phe Pro Ser Leu Ala  
 165 170 175  
 Val Gly Tyr Leu Ile Ser Asn Glu Lys Phe Phe Glu Pro Leu Thr Lys  
 180 185 190  
 Val Ile Ser Asn Leu Lys Ile Arg Ala Ser Tyr Gly Leu Val Gly Asn  
 195 200 205  
 Ala Asp Ile Gly Ser Asn Arg Phe Pro Tyr Leu Thr Lys Val Asp Leu  
 210 215 220  
 Gly Gly Ala Gly Phe Val Phe Gly Asp Gln Trp Gln Thr Ser Ser Asn  
 225 230 235 240  
 Gly Ala Thr Ile Thr Thr Tyr Gly Ala Glu Lys Val Thr Trp Glu Ile  
 245 250 255  
 Gly Lys Lys Tyr Asn Val Gly Phe Asp Leu Gly Leu Phe Asn Lys Leu  
 260 265 270  
 Ser Leu Asn Val Asp Phe Phe Arg Glu Asp Arg Lys Asp Ile Phe Leu  
 275 280 285  
 Arg Arg Asn Thr Ile Pro Ala Glu Ser Gly Ile Thr Gly Asp Leu Arg  
 290 295 300  
 Pro Tyr Gly Asn Leu Gly Lys Val Arg Asn Gln Gly Val Asp Met Ser  
 305 310 315 320  
 Leu Asp Tyr Asn His Ala Val Ser Lys Asp Phe Met Ile Ser Ala Lys  
 325 330 335  
 Gly Thr Phe Thr Tyr Ala Lys Asn Gln Tyr Met Glu Ile Asp Glu Pro  
 340 345 350  
 Asp Tyr Glu Tyr Ala Tyr Met Ser Gln Val Gly Arg Pro Leu Asn Gln  
 355 360 365  
 Tyr Lys Gly Tyr Ile Ala Leu Gly Leu Phe Lys Asp Gln Glu Glu Ile  
 370 375 380  
 Asp Asn Ser Pro Lys Gln Ile Leu Thr Gly Val Val Gln Pro Gly Asp  
 385 390 395 400  
 Ile Lys Tyr Ala Asp Leu Asn Asn Asp Gly Lys Ile Asp Gly Asn Asp  
 405 410 415  
 Gln Thr Tyr Ile Gly Asn Pro Glu Leu Pro Gln Ile Ser Tyr Gly Leu  
 420 425 430  
 Gly Val Ser Ile Gln Tyr Lys Lys Trp Asp Ala Ser Ile Phe Phe Gln  
 435 440 445  
 Gly Val Gly Lys Arg Ser Ile Met Leu Ser Asp Ile His Pro Phe Gly  
 450 455 460  
 Gly Glu Ser Tyr Gly Val Met Gln Phe Val Ala Asp Asn His Trp Thr  
 465 470 475 480  
 Glu Ala Asn Pro Asn Pro Glu Ala Met Tyr Pro Arg Leu Thr Asn Gly  
 485 490 495  
 Lys Asn Asn Asn Asn Asn Pro Asn Ser Thr Tyr Trp Leu Arg Asp Gly  
 500 505 510  
 Ser Tyr Ile Arg Leu Lys Asn Val Glu Leu Gly Tyr Ser Tyr Lys Phe  
 515 520 525  
 Leu Arg Ala Tyr Ile Ser Gly Gln Asn Leu Leu Thr Phe Ser Lys Phe  
 530 535 540  
 Lys Leu Trp Asp Pro Glu Leu Tyr Thr Ser Asn Gly Leu Lys Tyr Pro  
 545 550 555 560  
 Thr Gln Ile Met Gly Ser Ile Gly Leu Gln Phe Thr Phe  
 565 570

&lt;210&gt; 5272

&lt;211&gt; 555

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5272

Asn	Gln	Cys	Lys	Cys	Met	Lys	Lys	Lys	Ala	Ile	Pro	Cys	His	Lys	Ala
1			5						10					15	
Gly	Arg	Ile	Thr	Ser	Phe	Phe	Leu	Leu	Ile	Ser	Ile	Phe	Leu	Leu	Ile
			20					25					30		
Pro	Ser	Ile	Thr	Thr	Pro	Val	Tyr	Ala	Val	Glu	Thr	Tyr	Thr	Gln	Gln
		35					40					45			
Thr	Val	Phe	Thr	Leu	His	Ala	Thr	Asn	Lys	Thr	Val	Lys	Glu	Val	Phe
	50					55					60				
Glu	Tyr	Ile	Glu	Lys	Asn	Ser	Glu	Phe	Val	Val	Leu	Tyr	Ser	Lys	Asp
65					70					75					80
Leu	Leu	Pro	Val	Leu	Gln	Lys	Lys	Val	Ser	Val	Ser	Ile	Asp	Lys	Gln
				85					90					95	
Asn	Val	Glu	Ser	Ile	Leu	Asn	Ile	Leu	Ser	Lys	Glu	Ala	Gly	Leu	Lys
			100					105					110		
Tyr	Asn	Ile	Asn	Asp	Arg	Gln	Ile	Thr	Ile	Thr	Lys	Val	Thr	Ala	Glu
	115						120					125			
Ala	Pro	Gln	Gln	Glu	Lys	Lys	Ile	Lys	Ile	Thr	Gly	Gln	Val	Leu	Asp
	130					135					140				
Glu	Asn	Gly	Glu	Gly	Ile	Pro	Gly	Ala	Asn	Ile	Val	Ile	Lys	Gly	Asn
145					150					155					160
Ser	Thr	Leu	Gly	Thr	Val	Thr	Asn	Val	Glu	Gly	Asn	Phe	Thr	Leu	Met
				165					170					175	
Ala	Pro	Glu	Asn	Ser	Thr	Leu	Val	Ala	Ser	Phe	Ile	Gly	Tyr	Thr	Pro
			180					185					190		
Val	Glu	Ile	Pro	Leu	Lys	Gly	Lys	Lys	Ile	Val	Val	Phe	Lys	Leu	Val
		195					200					205			
Pro	Asp	Ala	Gln	Ser	Leu	Glu	Glu	Val	Val	Val	Val	Gly	Phe	Gly	Thr
	210					215					220				
Gln	Lys	Lys	Ala	Ser	Val	Val	Gly	Ala	Val	Gln	Ser	Ile	Lys	Pro	Ala
225					230					235					240
Glu	Leu	Arg	Val	Pro	Ser	Ser	Asn	Leu	Ser	Thr	Ser	Phe	Ala	Gly	Arg
				245					250					255	
Ile	Ala	Gly	Val	Ile	Ser	Met	Gln	Arg	Thr	Gly	Glu	Pro	Gly	Ala	Asp
			260					265					270		
Gly	Ala	Asn	Phe	Trp	Ile	Arg	Gly	Ala	Ala	Thr	Phe	Ser	Gly	Thr	Thr
		275					280					285			
Asp	Pro	Leu	Ile	Phe	Ile	Asp	Gly	Val	Glu	Val	Ser	Ala	Gly	Asp	Met
	290					295					300				
Asn	Ala	Ile	Pro	Ser	Glu	Ala	Ile	Glu	Asn	Phe	Ser	Ile	Leu	Lys	Asp
305					310					315					320
Ala	Ser	Ala	Thr	Ala	Leu	Tyr	Gly	Ala	Arg	Gly	Ala	Asn	Gly	Val	Ile
				325					330					335	
Leu	Ile	Thr	Thr	Arg	Thr	Gly	Lys	Asp	Leu	Glu	Lys	Ala	Arg	Ile	Asn
			340				345						350		
Val	Arg	Ile	Asp	Asn	Thr	Phe	Thr	Ala	Pro	Thr	Arg	Thr	Leu	Lys	Leu
	355						360					365			
Ala	Asp	Ala	Val	Thr	Ala	Met	Lys	Leu	Arg	Asn	Glu	Ala	Ile	Leu	Thr
	370					375					380				
Arg	Asn	Pro	Asp	Gly	Thr	Pro	Ala	Phe	Ser	Asp	Asp	Lys	Ile	Gln	Gly
385					390					395					400
Thr	Leu	Glu	Gly	Arg	Asn	Gln	Tyr	Val	Tyr	Pro	Asn	Val	Asp	Trp	Phe
				405					410					415	
Asp	Tyr	Met	Phe	Lys	Asp	Tyr	Ser	Met	Asn	Gln	Ser	Ala	Asn	Leu	Asn
			420					425					430		
Val	Met	Gly	Gly	Thr	Lys	Lys	Val	Asp	Tyr	Phe	Ile	Ser	Ala	Ser	Ile

435	440	445
Asn Asn Asp Asn Gly Met Leu Lys Lys Asp Pro Asn Asn Thr Phe Asp		
450	455	460
Asn Asn Ile Gln Asn Leu Arg Tyr Ser Phe Gln Ser Asn Val Gly Ala		
465	470	475
Trp Leu Thr Ser Ser Thr Lys Val Asn Val Arg Ile Asn Ser Gln Ile		
485	490	495
Val Asn Tyr Asn Gly Pro Ser Thr Ser Met Asp Asp Leu Tyr Lys Tyr		
500	505	510
Val Met Glu Ala Pro Ser Met Tyr Phe Ala Pro Val Tyr Pro Asn Ile		
515	520	525
Asn Arg Glu Asp His Thr Ile Phe Gly Asn Lys Ser Gly Gly Pro Ile		
530	535	540
Gly Ser Glu Gly Phe Ser Ile Tyr Arg Asn Pro		
545	550	555

<210> 5273  
 <211> 136  
 <212> PRT  
 <213> B.fragilis

<400> 5273

Ile Leu Arg Lys Glu Val Tyr Ile Leu Tyr Phe Cys Ser Ala His Met	
1	5 10 15
Val Thr Ile Thr Leu Tyr Met Asn Asn Ile Glu Tyr Ile Ser Lys	
20	25 30
Ile Lys Lys Gly Glu Glu Thr Ser Phe Arg His Phe Val Asn Ser Tyr	
35	40 45
Ser Lys Asp Leu Phe Tyr Tyr Ala Gln Cys Phe Val Arg Ser Lys Glu	
50	55 60
Thr Ala Glu Glu Val Val Ser Asp Val Phe Leu Asp Val Trp Arg His	
65	70 75 80
Arg Glu Glu Ile Asp Glu Ile Lys Asn Ile Lys Ala Trp Leu Leu Thr	
85	90 95
Leu Thr His Asn Lys Ala Ile Phe Tyr Leu Arg Lys Ala Glu Asn Ser	
100	105 110
Ser Glu Ile Ala Ser Trp Glu Glu Ile Asp Asp Phe Gln Ile Ile Gly	
115	120 125
Asn Leu Gln Leu Pro Met Lys Arg	
130	135

<210> 5274  
 <211> 616  
 <212> PRT  
 <213> B.fragilis

<400> 5274

Ile Ile Met Lys Leu Lys Asn Ile Ile Val Ala Leu Leu Ile Gly Ala	
1	5 10 15
Ser Leu His Ser Cys Asp Tyr Leu Asp Ile Val Pro Asp Asp Thr Pro	
20	25 30
Ile Leu Ala Asp Ala Phe Lys Asn Glu Gln Thr Ala Glu Asn Phe Val	
35	40 45
Phe Ala Cys Tyr Ser Phe Ile Pro Asn Tyr Leu Asn Phe Arg Gln Asn	
50	55 60
Phe Ser Trp Cys Thr Thr Pro Glu Thr Val Gly Ser Ala His Trp Thr	
65	70 75 80
Thr Thr Trp Phe Thr Phe Met Arg Met Gln Gln Gly Leu Tyr Asn Ser	
85	90 95

[illegible]

[illegible]

<400> 5275															
Thr	Ile	Lys	Lys	Glu	Lys	Gly	Cys	Arg	Asn	Pro	Ser	Phe	Ile	Ile	Tyr
1				5					10					15	
Leu	Tyr	Gly	Ser	Val	Val	Gly	Ser	Asn	Thr	Val	Arg	Tyr	Leu	Leu	Arg
			20					25					30		
Leu	Pro	Leu	Val	Asp	Gly	Gly	Lys	Thr	Asp	Leu	Leu	Pro	Lys	Lys	Val
		35					40					45			
Lys	Asp	Arg	Ala	Leu	Lys	Ser	Phe	Asn	Thr	Phe	Gln	Gln	Ala	Pro	Ile
	50					55					60				
Lys	His	Lys	Lys	Met	Ser	Gln	Lys	Gln	Gln	Leu	Ser	Arg	His	Phe	Asn
65				70						75				80	
Ile	Cys	Gln	Asn	Thr	His	Ala	Ser	Glu	His	Leu	Thr	Asp	Pro	Phe	Asp
				85					90					95	
Thr	Ser	Tyr	Lys	Ser	Ile	Asn	Phe	Leu	Phe	Cys	Ile	Ile	His	Gly	Lys
			100					105					110		

<400>	5276														
Lys	Gln	His	Glu	Ser	Asn	Ile	Glu	Asn	Arg	Met	Arg	Cys	Leu	Thr	Ile
1				5					10					15	
Leu	Leu	Gly	Asn	Cys	Phe	Leu	Leu	Leu	Val	Ser	Leu	Ala	Ser	Cys	Gly
			20					25					30		
Lys	Val	Ser	Leu	Ala	Glu	Glu	Ala	Val	Phe	Ser	Ile	Pro	Val	Asp	Thr
		35					40					45			
Thr	Phe	Met	Arg	Leu	Arg	Gln	Trp	Glu	Trp	Tyr	Cys	Gln	Lys	Arg	Ala
	50					55				60					
Asp	Ser	Cys	Leu	Thr	Glu	Asn	Asn	Tyr	Gln	Gly	Ala	Leu	Ser	Trp	Leu
65					70				75						80
Asp	Ser	Ala	Arg	Ile	Gln	Val	Glu	His	Tyr	Gly	Arg	Pro	Tyr	Tyr	Ile
				85					90					95	
Leu	Ala	Arg	Gly	Asp	Val	Tyr	Tyr	Ser	Ile	His	Gln	Tyr	Asp	Ser	Ala
			100					105					110		
Arg	Arg	Tyr	Phe	Ser	Met	Ala	Val	His	Ser	Ile	His	Pro	His	Ile	Ala
		115					120					125			
Ile	Glu	Ala	Trp	Arg	Lys	Leu	Ala	Glu	Leu	Glu	Leu	Met	Glu	Gly	Asn
	130					135					140				
Glu	Lys	Gln	Gly	Phe	Tyr	Ser	Thr	Gln	Lys	Ala	Asp	Ala	Leu	Phe	Arg
145					150				155					160	
Val	Glu	Ile	Gly	His	Val	Gln	Ser	Asp	Asn	Ser	Glu	Ala	Leu	Tyr	Gln
				165					170					175	
Glu	Glu	Arg	Leu	Lys	Asn	Glu	Leu	Asn	Gln	Leu	Lys	Ile	Ala	Lys	Gln
			180					185					190		



&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5278

Pro	Asn	Lys	Glu	Gly	Ala	Val	Leu	Val	Ile	Leu	Ser	Tyr	Gly	Lys	Leu
1				5					10					15	
Cys	Gly	Asp	Leu	Leu	Ser	Cys	Ser	Lys	Arg	Gly	Tyr	Thr	Thr	Ile	Tyr
			20					25					30		
Ile	Gln	Ile	Lys	Met	Met	Gln	Gln	Glu	Glu	Pro	Asn	Lys	Tyr	Val	Lys
			35				40					45			
Glu	Leu	Thr	Gln	Glu	Lys	Tyr	Lys	Tyr	Gly	Phe	Thr	Thr	Glu	Val	His
			50				55				60				
Thr	Asp	Ile	Ile	Glu	Lys	Gly	Leu	Asn	Glu	Asp	Val	Val	Arg	Leu	Ile
65					70					75					80
Ser	Ser	Lys	Lys	Asn	Glu	Pro	Glu	Trp	Leu	Leu	Glu	Phe	Arg	Leu	Lys
				85					90					95	
Ala	Tyr	Arg	His	Trp	Leu	Thr	Leu	Glu	Met	Pro	Thr	Trp	Ala	His	Leu
			100					105					110		
Arg	Ile	Pro	Glu	Ile	Asp	Tyr	Gln	Ala	Ile	Ser	Tyr	Tyr	Ala	Asp	Pro
			115				120						125		
Thr	Lys	Lys	Lys	Glu	Gly	Pro	Lys	Ser	Met	Asp	Glu	Val	Asp	Pro	Glu
			130				135					140			
Leu	Ile	Lys	Thr	Phe	Asn	Lys	Leu	Gly	Ile	Pro	Leu	Glu	Glu	Gln	Met
145					150					155					160
Ala	Leu	Ser	Gly	Met	Ala	Val	Asp	Ala	Val	Met	Asp	Ser	Val	Ser	Val
				165					170					175	
Lys	Thr	Thr	Phe	Lys	Glu	Thr	Leu	Met	Glu	Lys	Gly	Ile	Ile	Phe	Cys
			180					185					190		
Ser	Phe	Ser	Glu	Ala	Val	Arg	Glu	His	Pro	Asp	Leu	Val	Lys	Lys	Tyr
			195				200					205			
Leu	Gly	Ser	Val	Val	Gly	Tyr	Arg	Asp	Asn	Phe	Phe	Ala	Ala	Leu	Asn
			210			215					220				
Ser	Ala	Val	Phe	Ser	Asp	Gly	Ser	Phe	Val	Tyr	Ile	Pro	Lys	Gly	Val
225					230					235					240
Arg	Cys	Pro	Met	Glu	Leu	Ser	Thr	Tyr	Phe	Arg	Ile	Asn	Ala	Ala	Asn
				245					250					255	
Thr	Gly	Gln	Phe	Glu	Arg	Thr	Leu	Ile	Val	Ala	Asp	Asp	Asp	Ser	Tyr
			260					265					270		
Val	Ser	Tyr	Leu	Glu	Gly	Cys	Thr	Ala	Pro	Met	Arg	Asp	Glu	Asn	Gln
			275				280					285			
Leu	His	Ala	Ala	Ile	Val	Glu	Ile	Met	Val	His	Asp	Arg	Ala	Glu	Val
			290				295				300				
Lys	Tyr	Ser	Thr	Val	Gln	Asn	Trp	Tyr	Pro	Gly	Asp	Ala	Glu	Gly	Lys
305					310					315					320
Gly	Gly	Val	Tyr	Asn	Phe	Val	Thr	Lys	Arg	Gly	Asn	Cys	Lys	Gly	Val
				325					330					335	
Asp	Ser	Lys	Leu	Ser	Trp	Thr	Gln	Val	Glu	Thr	Gly	Ser	Ala	Ile	Thr
			340					345					350		
Trp	Lys	Tyr	Pro	Ser	Cys	Ile	Leu	Ser	Gly	Asp	Asn	Ser	Thr	Ala	Glu
			355				360					365			
Phe	Tyr	Ser	Val	Ala	Val	Thr	Asn	Asn	Tyr	Gln	Gln	Ala	Asp	Thr	Gly
			370			375					380				
Thr	Lys	Met	Ile	His	Leu	Gly	Lys	Asn	Thr	Arg	Ser	Thr	Ile	Val	Ser
385					390					395					400
Lys	Gly	Ile	Ser	Ala	Gly	Lys	Ser	Glu	Asn	Ser	Tyr	Arg	Gly	Leu	Val
				405					410					415	
Arg	Val	Ala	Glu	Lys	Ala	Asp	Asn	Ala	Arg	Asn	Tyr	Ser	Gln	Cys	Asp
			420					425					430		
Ser	Leu	Leu	Leu	Gly	Asp	Lys	Cys	Gly	Ala	His	Thr	Phe	Pro	Tyr	Met

435 440 445  
 Asp Ile His Asn Glu Thr Ala Val Val Glu His Glu Ala Thr Thr Ser  
 450 455 460  
 Lys Ile Ser Glu Asp Gln Ile Phe Tyr Cys Asn Gln Arg Gly Ile Ser  
 465 470 475 480  
 Thr Glu Asp Ala Ile Gly Leu Ile Val Asn Gly Tyr Ala Lys Glu Val  
 485 490 495  
 Leu Asn Lys Leu Pro Met Glu Phe Ala Val Glu Ala Gln Lys Leu Leu  
 500 505 510  
 Thr Ile Ser Leu Glu Gly Ser Val Gly  
 515 520

<210> 5279  
 <211> 81  
 <212> PRT  
 <213> B.fragilis

<400> 5279  
 Pro Arg His Trp Arg Arg Phe His Leu Ala Gly Leu Asn Arg Met Leu  
 1 5 10 15  
 Glu Ala Gly Leu Gly Ala Leu Lys Tyr Leu Leu Leu Val Ser Leu Val  
 20 25 30  
 Ile Cys Val Ile Gln Phe Ile Asp Ser Asp Ser Gln Leu Ile Ser Gln  
 35 40 45  
 Thr Lys Lys Glu Gln Ser Leu Leu Tyr Tyr Leu Met Glu Ser Phe Ala  
 50 55 60  
 Gly Ile Phe Phe Pro Ala Ala Lys Glu Val Thr Gln Gln Tyr Ile Phe  
 65 70 75 80  
 Lys

<210> 5280  
 <211> 446  
 <212> PRT  
 <213> B.fragilis

<400> 5280  
 Leu Phe Thr Trp Phe Leu Val Leu Gly Asn Leu Phe Val His Ala Asn  
 1 5 10 15  
 Leu Arg Asn Ile Leu Tyr Asn Met Leu Ile Tyr Ser Val Val Ser Tyr  
 20 25 30  
 Phe Phe Leu Lys Tyr Phe Val Tyr Ile Pro Phe Cys Phe Ser Ser Ala  
 35 40 45  
 Arg Trp Leu Ile Leu Gln Tyr Gln Asn Phe Lys Asn Val Arg Asp Met  
 50 55 60  
 Leu Asn Arg Leu Asn Tyr Phe Ile Met Leu Ala Gly Leu Leu Val Leu  
 65 70 75 80  
 Val Ala Cys Ser Ser Asn Ser Gly Lys Gln Val Glu Val Ala Asn Thr  
 85 90 95  
 Pro Phe Val Tyr Asp Gly Leu Lys Glu Tyr Pro Val Lys Glu Leu Lys  
 100 105 110  
 Leu Ser Asp Leu Ala Val Ser Asp Tyr Val Leu Leu Lys Asp Asp Glu  
 115 120 125  
 Asn Ser Leu Leu Gly Arg Leu Pro Thr Asn Pro Cys Met Gln Val Thr  
 130 135 140  
 Glu Asp Arg Ile Tyr Ile Gln Asp Glu Glu Gln Ala Ile Phe Ile  
 145 150 155 160  
 Phe Asp Arg Gln Gly Asn Pro Leu Leu Gln Met Arg His Lys Gly Gly  
 165 170 175

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Gly Pro Gln Glu Trp Ala Ser Leu Asn Ser Phe Tyr Val Asp Ser Pro  
 180 185 190  
 Asn Lys Glu Ile Ile Val Leu Asp Trp Ala Lys Lys Phe Ile Val Tyr  
 195 200 205  
 Asp Leu Asn Gly Lys Phe Lys Arg Ser Phe Pro Thr Pro Gly Cys Ser  
 210 215 220  
 Trp Lys Phe Ala Asn Leu Asn Asp Glu Ala Val Leu Ile Tyr Cys Pro  
 225 230 235 240  
 Phe Thr Asn Arg Asn Asn Gly Glu Ala Val Cys Ile Leu Ser Lys Lys  
 245 250 255  
 Asp Gly Lys Lys Leu Tyr Val Cys Pro Ile Thr Ile Asp Asn Phe Val  
 260 265 270  
 Trp Asp Ser Glu Gly Arg Ile Gly Tyr Glu Pro Leu Lys Pro Ala Tyr  
 275 280 285  
 Gly Gly Ile Leu Phe Ser Asp Leu Ser Leu Lys Gly Val Tyr Phe Ile  
 290 295 300  
 Asp Ala Glu Thr Tyr Glu Val Lys Gln Val Ile Asp Glu Val Thr Glu  
 305 310 315 320  
 Tyr Lys Phe Glu Asn Ala Glu Phe Val Lys Leu His Pro Ala Ile Asp  
 325 330 335  
 Ala Lys Asp Tyr Thr Leu Tyr Thr Thr Leu Gly Thr Lys Trp Leu Thr  
 340 345 350  
 Pro Asp Met Pro Met Asn Tyr Tyr Tyr Phe Asp Lys Lys Glu Gln Lys  
 355 360 365  
 Met Tyr Thr Leu Lys Asn Glu Thr Gly Trp Ala Val Leu Lys Asp Ile  
 370 375 380  
 Cys Asn Val Gln Arg Thr Arg Thr Thr Asn Thr Pro Gly Ile Gly Ile  
 385 390 395 400  
 Gly Tyr Tyr Trp Pro Ser Thr Met Lys Gly Glu Ser Met Gln Ala Glu  
 405 410 415  
 Lys Glu Gln Phe Asp Ser Arg Phe Arg Ala Ile Met Asp Ser Ile Pro  
 420 425 430  
 Glu Glu Gly Asn Pro Val Leu Gln Ile Met Asn Phe Asn Lys  
 435 440 445

<210> 5281  
 <211> 89  
 <212> PRT  
 <213> B.fragilis

<400> 5281  
 Leu Gln Leu Arg Val Ser Val Phe Val Leu His Arg Met Thr Thr Ile  
 1 5 10 15  
 Asp Ile Ile Ile Leu Ile Ala Leu Gly Ala Gly Val Ile Val Gly Phe  
 20 25 30  
 Met Lys Gly Phe Ile Arg Gln Leu Ala Ser Ile Leu Gly Leu Ile Val  
 35 40 45  
 Gly Leu Leu Ala Ala Lys Ala Phe Val His Leu Thr Gly Cys Glu Val  
 50 55 60  
 Met Pro Tyr Gly Asp Arg Leu His Asp Cys Gly Ala Asp Thr Gly Ile  
 65 70 75 80  
 Tyr His Tyr Leu Asp Arg Cys Gly Arg  
 85

<210> 5282  
 <211> 456  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5282

Glu Gly Ile Arg Arg Met Ser Leu Ile Met Asn Ala Glu Gln Gln Tyr  
 1 5 10 15  
 Ile Asp Leu Phe Ser Gln Cys Glu Ala Met Ile Cys Arg His Ser Ala  
 20 25 30  
 Glu Ala Leu Asn Ala Pro Arg Ala Thr Ala Phe Ala Asp Phe Glu Arg  
 35 40 45  
 Gln Gly Phe Pro Thr Arg Lys Gln Glu Lys Tyr Lys Tyr Thr Asp Val  
 50 55 60  
 Ser Lys Phe Phe Glu Pro Asp Tyr Gly Leu Asn Leu Asn Arg Leu Pro  
 65 70 75 80  
 Ile Pro Val Asn Pro Tyr Glu Val Phe Lys Cys Asp Val Pro Asn Met  
 85 90 95  
 Ser Thr Ser Leu Phe Phe Val Val Asn Asp Ala Phe Tyr Asn Gln Val  
 100 105 110  
 Leu Pro Lys Ser Gly Leu Pro Glu Gly Val Ile Phe Gly Ser Leu Arg  
 115 120 125  
 Asn Met Ala Glu Gln His Pro Glu Leu Val Lys Lys Tyr Tyr Gly Lys  
 130 135 140  
 Leu Ala Asp Thr Ser Lys Asp Ala Val Thr Ala Phe Asn Thr Ala Phe  
 145 150 155 160  
 Ala Gln Asp Gly Val Leu Met Tyr Val Pro Lys Asn Val Ile Val Asp  
 165 170 175  
 Arg Pro Ile Gln Leu Val Asn Ile Leu Arg Ala Asp Val Asn Phe Met  
 180 185 190  
 Val Asn Arg Arg Val Leu Ile Ile Leu Glu Glu Gly Ala Gln Ala Arg  
 195 200 205  
 Leu Leu Ile Cys Asp His Ala Met Asp Asn Val Asn Phe Leu Ala Thr  
 210 215 220  
 Gln Val Ile Glu Val Phe Ala Glu Glu Asn Ser Val Phe Asp Leu Tyr  
 225 230 235 240  
 Glu Leu Glu Glu Thr His Thr Ser Thr Val Arg Phe Ser Asn Leu Tyr  
 245 250 255  
 Val Lys Gln Gly Ala Asn Ser Asn Val Leu Leu Asn Gly Met Thr Leu  
 260 265 270  
 His Asn Gly Thr Thr Arg Asn Thr Thr Glu Val Thr Leu Ala Gly Glu  
 275 280 285  
 Gly Ala Glu Ile Asn Leu Cys Gly Met Ala Ile Ala Asp Lys Asn Gln  
 290 295 300  
 His Val Asp Asn Asn Thr Ser Ile Asp His Ala Val Pro Asn Cys Thr  
 305 310 315 320  
 Ser Asn Glu Leu Phe Lys Tyr Val Leu Asp Asp Gln Ser Val Gly Ala  
 325 330 335  
 Phe Ala Gly Leu Val Leu Val Arg Pro Asp Ala Gln His Thr Ser Ser  
 340 345 350  
 Gln Gln Thr Asn Arg Asn Leu Cys Ala Thr Arg Asp Ala Arg Met Tyr  
 355 360 365  
 Thr Gln Pro Gln Leu Glu Ile Tyr Ala Asp Asp Val Lys Cys Ser His  
 370 375 380  
 Gly Ala Thr Val Gly Gln Leu Asp Glu Asn Ala Leu Phe Tyr Met Arg  
 385 390 395 400  
 Ala Arg Gly Ile Ala Glu Lys Glu Ala Arg Leu Leu Leu Met Phe Ala  
 405 410 415  
 Phe Val Asn Glu Val Ile Asp Thr Ile Arg Leu Lys Ala Leu Lys Asp  
 420 425 430  
 Arg Leu His Leu Leu Val Glu Lys Arg Phe Arg Gly Glu Leu Asn Lys  
 435 440 445  
 Cys Gln Gly Cys Ser Ile Cys Lys  
 450 455

<210> 5283  
 <211> 253  
 <212> PRT  
 <213> B.fragilis

<400> 5283

Arg	Gln	Cys	Arg	Ile	Met	Lys	Thr	Lys	Arg	Val	Gly	Trp	Leu	Leu	Ile
1				5					10				15		
Phe	Leu	Ser	Tyr	Val	Gly	Val	Val	Leu	Ala	Gln	Asn	Leu	Asp	Asp	Gln
			20					25				30			
Glu	Arg	Arg	Trp	Ala	Ile	Ser	Gly	Ser	Trp	Gly	Gly	Asn	Trp	Pro	Ile
		35					40					45			
Val	Thr	Lys	Asn	Thr	Leu	Ser	Gly	Lys	Ala	Val	Ser	Ala	Gly	His	Ile
	50					55					60				
His	Thr	Leu	Met	Leu	Glu	Tyr	Tyr	Ile	Pro	Tyr	Thr	Arg	Phe	Ser	Leu
65				70					75						80
Lys	Gly	Gly	Tyr	Thr	Gly	Glu	Glu	Ile	Gly	Leu	Asn	Pro	Gly	Ile	Ser
				85					90					95	
Ala	Ser	Met	Ser	Asn	Leu	Glu	Ile	Gly	Gly	Arg	Tyr	Tyr	Phe	Leu	Pro
			100					105					110		
Gln	Arg	Phe	Ala	Ile	Gln	Pro	Tyr	Gly	Gly	Leu	Ser	Thr	Gly	Trp	Asn
		115					120					125			
Leu	Ser	Pro	Arg	Arg	Gln	Glu	Gly	Met	Gly	Ser	Ser	Ser	Tyr	Tyr	Asp
	130					135					140				
Pro	Ser	Arg	Gln	Glu	Phe	Arg	Lys	Asp	Tyr	Asp	Tyr	Arg	Tyr	Arg	Ile
145				150					155						160
Lys	Glu	Pro	Leu	Phe	Thr	Val	Ser	Pro	Val	Val	Gly	Ala	Asp	Ile	Tyr
				165					170					175	
Phe	Leu	Ser	Cys	Leu	Ala	Leu	Thr	Leu	Glu	Tyr	Asn	Phe	Arg	Met	Gly
			180					185				190			
Ile	Ala	Gly	Lys	Ile	Ser	Gly	Glu	Ile	Glu	Lys	Thr	Asn	Ser	Arg	Gly
		195					200					205			
Thr	Gly	Phe	Val	Arg	Ser	Asn	Gly	Met	Arg	Gln	Thr	Val	Ser	Val	Gly
	210					215					220				
Val	Lys	Val	Asn	Phe	Pro	Phe	Thr	Ile	Thr	Gln	Thr	Asp	Gly	Asn	Ser
225				230					235						240
Ile	Leu	Gln	Trp	Leu	Asp	Glu	Val	Ile	Phe	Gly	Lys	Glu			
				245					250						

<210> 5284  
 <211> 292  
 <212> PRT  
 <213> B.fragilis

<400> 5284

Glu	Asp	Gly	Gly	Gly	Ser	Ser	Met	Asp	Thr	Ala	Lys	Ala	Ile	Gly	Ile
1				5					10				15		
Ile	Thr	Asn	Asn	Pro	Glu	Phe	Ser	Asp	Val	Val	Ser	Leu	Glu	Gly	Val
		20						25				30			
Ala	Asp	Thr	Lys	Lys	Lys	Ser	Val	Pro	Ile	Ile	Ala	Leu	Pro	Thr	Thr
		35					40					45			
Ala	Gly	Thr	Ala	Ala	Glu	Val	Thr	Ile	Asn	Tyr	Val	Ile	Thr	Asp	Glu
	50					55					60				
Lys	Asn	Gln	Lys	Lys	Met	Val	Cys	Val	Asp	Pro	Asn	Asp	Ile	Pro	Ser
65				70					75						80
Ile	Ala	Ile	Val	Asp	Ala	Glu	Leu	Met	Tyr	Thr	Leu	Pro	Lys	Ser	Leu
			85						90					95	
Thr	Ala	Ala	Thr	Gly	Leu	Asp	Ala	Leu	Thr	His	Ala	Ile	Glu	Gly	Leu

100	105	110
Ile Thr Lys Gly Ala Trp Glu Met Ser Asp Met Phe Glu Ile Lys Ala		
115	120	125
Ile Glu Met Ile Asn Arg Tyr Leu Val Thr Ala Val Glu Glu Pro Ser		
130	135	140
Asn Ala Glu Ala Arg Asn Gly Met Ala Val Ala Gln Tyr Ile Ala Gly		
145	150	155
Met Ala Phe Ser Asn Val Gly Leu Gly Val Val His Gly Met Ala His		
165	170	175
Pro Leu Gly Ala Ile Phe Asp Ile Pro His Gly Val Ala Asn Ala Leu		
180	185	190
Leu Leu Pro Ile Ile Met Glu Phe Asn Ala Pro Ala Ala Leu Asp Lys		
195	200	205
Tyr Val Glu Ile Ala Lys Ala Met Asn Val Tyr Ser Thr Asp Met Thr		
210	215	220
Lys Glu Lys Ala Ala Glu Ala Ala Val Glu Ala Val Lys Thr Leu Ser		
225	230	235
Leu Arg Val Asn Ile Pro Gln His Leu Ser Asp Leu Gly Ile Gln Glu		
245	250	255
Ser Asp Leu Asp Arg Leu Ala Thr Ala Ala Phe Ala Asp Val Cys Thr		
260	265	270
Pro Gly Asn Pro Arg Glu Val Thr Lys Glu Ile Ile Leu Asp Leu Tyr		
275	280	285
Lys Lys Ala Leu		
290		

&lt;210&gt; 5285

&lt;211&gt; 215

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5285

Glu Ser Ile Met Ile Thr Asn Glu His Ile Glu Gln Tyr Leu Ala Gln		
1	5	10
Ala His Arg Tyr Gly Asp Ala Lys Leu Met Leu Arg Ser Ser Gly Asn		
20	25	30
Leu Ser Trp Arg Ile Gly Glu Glu Ala Leu Val Ser Gly Thr Gly Ser		
35	40	45
Trp Val Pro Asn Leu Gln Lys Glu Lys Val Ser Ile Cys Asn Ile Ala		
50	55	60
Thr Gly Thr Pro Gln Asn Gly Val Lys Pro Ser Met Glu Ser Thr Phe		
65	70	75
His Leu Gly Ile Leu Arg Glu Arg Pro Asp Val Asn Val Val Leu His		
85	90	95
Phe Gln Ser Glu Tyr Ala Thr Ala Val Ser Cys Met Lys Asn Lys Pro		
100	105	110
Ser Asn Phe Asn Val Thr Ala Glu Ile Pro Cys His Val Arg Lys Glu		
115	120	125
Ile Pro Ile Ile Pro Tyr Tyr Arg Pro Gly Ser Pro Ala Leu Ala Lys		
130	135	140
Ala Val Val Glu Ala Met Lys Glu His Asn Ser Val Leu Leu Thr Asn		
145	150	155
His Gly Gln Val Val Cys Gly Lys Asp Phe Asp Gln Val Tyr Glu Arg		
165	170	175
Ala Thr Phe Phe Glu Met Ala Cys Arg Ile Ile Val Gln Ser Gly Gly		
180	185	190
Asp Tyr Ser Val Leu Thr Pro Glu Glu Ile Asp Asp Leu Glu Val Tyr		
195	200	205
Val Leu Gly Lys Lys Thr Lys		

215

<400> 5286

[illegible]

<210> 5287  
 <211> 488  
 <212> PRT  
 <213> B.fragilis

<400> 5287

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Leu Gly Gly Ile Cys Ile Gly Lys Glu Asn Lys Ile Asp Asn Asp Tyr
1      5      10      15
Gln Leu Met Ser Thr Tyr Leu Ala Ala Asp Phe Gly Gly Gly Ser Gly
      20      25      30
Arg Ile Met Ala Gly Thr Leu Thr Glu Gly Lys Leu Lys Leu Glu Glu
      35      40      45
Val Tyr Arg Phe Ala Asn Arg Gln Ile Lys Leu Gly Asn Cys Val Tyr
      50      55      60
Trp Asp Phe Leu Ser Leu Phe Glu Glu Met Lys Asn Gly Leu Arg Val
65      70      75      80
Ala Ala Arg Lys Gly Tyr Glu Val Lys Ser Met Ala Ile Asp Thr Trp
      85      90      95
Gly Val Asp Phe Gly Leu Ile Asp Lys Asp Gly Lys Leu Leu Gly Asn
      100     105     110
Pro Val Cys Tyr Arg Asp Ser Arg Thr Asp Gly Ile Pro Glu Arg Val
      115     120     125
Phe Lys Gln Ile Asp Gln Thr Val His Tyr Ala Glu Ile Gly Ile Gln
      130     135     140
Val Met Pro Ile Asn Thr Leu Phe Gln Leu Tyr Ser Met Lys Gln Asn
145     150     155     160
Asp Asp Val Gln Leu Arg Val Ala Asp Lys Leu Leu Phe Met Pro Asp
      165     170     175
Leu Phe Ser Tyr Phe Leu Thr Gly Val Ala Asn Asn Glu Tyr Cys Ile
      180     185     190
Ala Ser Thr Ser Glu Leu Leu Asp Ala Arg Gln Arg Asn Trp Ser Asp
      195     200     205
Asn Leu Ile Ser Glu Leu Gly Leu Pro Arg Gln Leu Phe Gly Glu Ile
      210     215     220
Val Phe Pro Gly Thr Val Arg Gly Lys Leu Lys Gln Glu Ile Ala Asp
225     230     235     240
Glu Thr Gly Leu Gly Cys Ile Asn Val Val Ala Val Gly Ser His Asp
      245     250     255
Thr Ala Ser Ala Val Phe Ala Val Pro Ser Asn Glu Pro Asn Arg Ala
      260     265     270
Tyr Leu Ser Ser Gly Thr Trp Ser Leu Leu Gly Ala Glu Val Asp Gln
      275     280     285
Pro Ile Leu Thr Glu Glu Ala Arg Val Ala Gly Phe Thr Asn Glu Gly
      290     295     300
Gly Ile Gln Gly Lys Ile Arg Phe Leu Gln Asn Ile Thr Gly Leu Trp
305     310     315     320
Ile Leu Gln Arg Leu Met Ala Glu Trp Lys Glu Gln Gly Lys Glu Ile
      325     330     335
Ser Tyr Asp Cys Ala Ile Ala Glu Ala Thr Val Ser Asp Ile Arg Ser
      340     345     350
Val Ile Asp Val Asp Asp Ser Ala Phe Cys Asn Pro Asp His Met Glu
      355     360     365
Glu Ser Ile Ile Lys Tyr Cys His Lys His His Leu Arg Thr Pro Val
      370     375     380
Ser Gln Gly Glu Phe Val Arg Cys Val Ile Glu Ser Leu Ala Tyr Arg
385     390     395     400
Tyr Lys Leu Gly Val Glu Gln Met Asn Arg Cys Leu Pro Ala Pro Val
      405     410     415
Lys Gln Leu His Ile Ile Gly Gly Gly Cys Gln Asn Arg Leu Leu Asn

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420 425 430  
 Gln Leu Thr Ala Asn Ala Leu Gly Ile Pro Val Tyr Ala Gly Pro Val  
 435 440 445  
 Glu Ala Thr Ala Ile Gly Asn Ile Leu Val Gln Ala Lys Ala Gln Gly  
 450 455 460  
 Glu Val Asp Ser Trp Glu Glu Leu Lys Glu Ile Ile Ile Asn Ser Val  
 465 470 475 480  
 Glu Pro Gln Val Tyr Tyr Pro Glu  
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<210> 5288  
 <211> 1016  
 <212> PRT  
 <213> B.fragilis

<400> 5288  
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 Ile Ala Thr Val Val Glu Phe Leu Gln Lys Lys Gly Tyr Thr Val Glu  
 20 25 30  
 Ala Asn Pro Asn Thr Lys Ile Thr Glu Glu Gln Tyr Ala Met Leu Val  
 35 40 45  
 Lys Glu Phe Ser Thr Asp Lys Asn Leu Arg Leu Glu Ser Glu Arg Phe  
 50 55 60  
 Ile Gln Glu Arg Gln Asn Lys Asp Arg Asn Lys Ala Ser Val Ser Ile  
 65 70 75 80  
 Asp Gly Tyr Asp Lys Lys Glu Pro Glu Lys Thr Val Ala Asp Asp Val  
 85 90 95  
 Ile Lys Thr Val Ile Pro Glu Asp Val Arg Pro Lys Phe Lys Pro Val  
 100 105 110  
 Gly Lys Ile Asp Leu Asp Lys Leu Asn Arg Lys Val Glu Lys Glu Pro  
 115 120 125  
 Met Lys Glu Glu Pro Lys Pro Gln Pro Val Ala Ala Glu Glu Lys Lys  
 130 135 140  
 Val Ala Glu Glu Val Lys Pro Val Val Ile Glu Val Lys Lys Glu Glu  
 145 150 155 160  
 Val Thr Val Thr Pro Ala Thr Ser Glu Pro Lys Pro Val Lys Glu Glu  
 165 170 175  
 Pro Lys Pro Val Val Glu Lys Pro Val Glu Thr Glu Lys Lys Val  
 180 185 190  
 Val Glu Glu Val Lys Lys Glu Glu Lys Pro Lys Val Val Val Ser Pro Glu  
 195 200 205  
 Lys Thr Glu Lys Lys Glu Glu Lys Pro Val Ala Glu Ala Pro Val Thr  
 210 215 220  
 Pro Val Glu Lys Glu Glu Glu Gly Val Phe Lys Ile Arg Pro Thr Glu  
 225 230 235 240  
 Phe Val Ser Lys Ile Asn Val Ile Gly Gln Ile Asp Leu Ala Ala Leu  
 245 250 255  
 Asn Gln Ser Thr Arg Pro Lys Lys Lys Ser Lys Glu Glu Lys Arg Lys  
 260 265 270  
 Glu Arg Glu Glu Lys Glu Lys Leu Arg Gln Asp Gln Lys Lys Gln Met  
 275 280 285  
 Lys Glu Ala Ile Ile Lys Glu Ile Arg Lys Glu Asp Ser Lys Gln Ala  
 290 295 300  
 Lys Val Val Gly Lys Glu Asn Leu Asp Pro Asn Gly Lys Lys Lys Arg  
 305 310 315 320  
 Asn Arg Ile Asn Asn Asn Lys Glu Lys Val Asp Val Asn Asn Val Ala  
 325 330 335  
 Ser Asn Phe Ala His Pro Thr Pro Asn Ser Glu Arg Thr Asn Asn Asn

340	345	350
Arg Gly Gly Asn Gln Gln Gly Gly Gly Gly Gln Asn Arg Asn Arg Asn		
355	360	365
Asn Asn Asn Lys Asp Arg Phe Lys Lys Pro Val Val Lys Gln Glu Val		
370	375	380
Ser Glu Glu Asp Val Ala Lys Gln Val Lys Glu Thr Leu Ala Arg Leu		
385	390	395
Thr Ser Lys Gly Lys Asn Lys Gly Ala Lys Tyr Arg Lys Glu Lys Arg		
405	410	415
Asp Met Ala Ser Asn Arg Met Gln Glu Leu Glu Asp Gln Glu Met Ala		
420	425	430
Glu Ser Lys Val Leu Lys Leu Thr Glu Phe Val Thr Ala Asn Glu Leu		
435	440	445
Ala Ser Met Met Asn Val Ser Val Asn Gln Val Ile Gly Thr Cys Met		
450	455	460
Ser Ile Gly Met Met Val Ser Ile Asn Gln Arg Leu Asp Ala Glu Thr		
465	470	475
Ile Asn Leu Val Ala Glu Glu Phe Gly Phe Lys Thr Glu Tyr Val Ser		
485	490	495
Ala Glu Val Ala Gln Ala Ile Val Glu Glu Glu Asp Ala Pro Glu Asp		
500	505	510
Leu Glu His Arg Ala Pro Ile Val Thr Val Met Gly His Val Asp His		
515	520	525
Gly Lys Thr Ser Leu Leu Asp Tyr Ile Arg Lys Ala Asn Val Ile Ala		
530	535	540
Gly Glu Ala Gly Gly Ile Thr Gln His Ile Gly Ala Tyr His Val Thr		
545	550	555
Leu Glu Asp Gly Arg Lys Ile Thr Phe Leu Asp Thr Pro Gly His Glu		
565	570	575
Ala Phe Thr Ala Met Arg Ala Arg Gly Ala Lys Val Thr Asp Ile Ala		
580	585	590
Ile Ile Ile Val Ala Ala Asp Asp Asp Val Met Pro Gln Thr Lys Glu		
595	600	605
Ala Ile Asn His Ala Ala Ala Gly Val Pro Ile Val Phe Ala Ile		
610	615	620
Asn Lys Ile Asp Lys Pro His Ala Asn Pro Glu Lys Ile Lys Glu Thr		
625	630	635
Leu Ala Gln Met Asn Tyr Leu Val Glu Glu Trp Gly Gly Lys Tyr Gln		
645	650	655
Ser Gln Asp Ile Ser Ala Lys Lys Gly Leu Gly Val Pro Glu Leu Met		
660	665	670
Glu Lys Val Leu Leu Glu Ala Glu Met Leu Asp Leu Lys Ala Asn Pro		
675	680	685
Asn Arg Asn Ala Thr Gly Ser Ile Ile Glu Ser Thr Leu Asp Lys Gly		
690	695	700
Arg Gly Tyr Val Ala Thr Val Leu Val Ser Asn Gly Thr Leu Lys Val		
705	710	715
Gly Asp Ile Val Leu Ala Gly Thr Ser Tyr Gly Arg Val Lys Ala Met		
725	730	735
Phe Asn Glu Arg Asn Gln Arg Val Ala Gln Ala Gly Pro Ser Glu Pro		
740	745	750
Val Leu Ile Leu Gly Leu Asn Gly Ala Pro Ala Ala Gly Asp Thr Phe		
755	760	765
His Val Ile Glu Thr Asp Gln Glu Ala Arg Glu Ile Ala Asn Lys Arg		
770	775	780
Glu Gln Leu Gln Arg Glu Gln Gly Leu Arg Thr Gln Lys Leu Leu Thr		
785	790	795
Leu Asp Glu Val Gly Arg Arg Ile Ala Leu Gly Asn Phe Gln Glu Leu		
805	810	815

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Asn Val Ile Val Lys Gly Asp Val Asp Gly Ser Ile Glu Ala Leu Ser  
 820 825 830  
 Asp Ser Leu Ile Lys Leu Ser Thr Glu Gln Ile Gln Val Asn Val Ile  
 835 840 845  
 His Lys Ala Val Gly Gln Ile Ser Glu Ser Asp Val Thr Leu Ala Ala  
 850 855 860  
 Ala Ser Asp Ala Ile Ile Ile Gly Phe Gln Val Arg Pro Ser Ala Ser  
 865 870 875 880  
 Ala Arg Lys Phe Ala Glu Gln Glu Gly Val Asp Ile Arg Leu Tyr Ser  
 885 890 895  
 Val Ile Tyr Ala Ala Ile Glu Glu Val Lys Ala Ala Met Glu Gly Met  
 900 905 910  
 Leu Ala Pro Glu Val Lys Glu Val Val Thr Ala Thr Ile Glu Val Arg  
 915 920 925  
 Glu Val Phe His Ile Thr Lys Val Gly Thr Val Ala Gly Ala Val Val  
 930 935 940  
 Lys Glu Gly Lys Val Lys Arg Ser Asp Lys Ala Arg Leu Ile Arg Asp  
 945 950 955 960  
 Gly Ile Val Ile Phe Ser Gly Ser Ile Asn Ala Leu Lys Arg Phe Lys  
 965 970 975  
 Asp Asp Val Lys Glu Val Gly Thr Asn Phe Glu Cys Gly Ile Ser Leu  
 980 985 990  
 Val Asn Tyr Asn Asp Leu Lys Val Gly Asp Met Ile Glu Thr Tyr Glu  
 995 1000 1005  
 Glu Val Glu Val Lys Gln Thr Leu  
 1010 1015

&lt;210&gt; 5289

&lt;211&gt; 416

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5289

Val Pro Gly Met Phe Tyr Leu Gln Ile Ile Ser Asp Lys Met Asn Ile  
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 His Lys Ile Arg Glu Asp Phe Pro Ile Leu Ser Arg Thr Val Tyr Gly  
 20 25 30  
 Lys Pro Leu Val Tyr Leu Asp Asn Gly Ala Thr Thr Gln Lys Pro Arg  
 35 40 45  
 Leu Val Ile Asp Ser Ile Val Asp Glu Tyr Tyr Ser Val Asn Ala Asn  
 50 55 60  
 Val His Arg Gly Val His Phe Leu Ser Gln Gln Ala Thr Glu Leu His  
 65 70 75 80  
 Glu Ala Ser Arg Glu Thr Val Arg Gln Phe Ile Asn Ala Arg Ser Thr  
 85 90 95  
 Arg Glu Val Ile Phe Thr Arg Gly Thr Thr Glu Ser Ile Asn Leu Ile  
 100 105 110  
 Val Ser Ser Phe Gly Glu Glu Phe Met Gln Glu Gly Asp Glu Val Ile  
 115 120 125  
 Val Ser Val Met Glu His His Ser Asn Ile Val Pro Trp Gln Leu Leu  
 130 135 140  
 Ala Ala Arg Lys Gly Ile Ala Ile Lys Val Ile Pro Met Asn Asp Lys  
 145 150 155 160  
 Gly Glu Leu Leu Leu Glu Glu Tyr Glu Asn Leu Phe Ser Glu Arg Thr  
 165 170 175  
 Lys Ile Val Ser Val Ala Gln Val Ser Asn Val Leu Gly Thr Ile Asn  
 180 185 190  
 Pro Val Lys Glu Met Ile Ala Thr Ala His Ala His Gly Val Pro Val  
 195 200 205

Met Ile Asp Gly Ala Gln Ser Ile Pro His Met Lys Val Asp Val Gln  
 210 215 220  
 Asp Leu Asp Ala Asp Phe Phe Val Phe Ser Gly His Lys Ile Tyr Gly  
 225 230 235 240  
 Pro Thr Gly Ile Gly Val Leu Tyr Gly Lys Glu Asp Trp Leu Glu Arg  
 245 250 255  
 Leu Pro Pro Tyr Gln Gly Gly Gly Glu Met Ile Gln Ser Val Ser Phe  
 260 265 270  
 Glu Lys Thr Val Phe Gly Glu Leu Pro Phe Lys Phe Glu Ala Gly Thr  
 275 280 285  
 Pro Asp Tyr Ile Ala Thr Thr Gly Leu Ala Lys Ala Leu Asp Tyr Val  
 290 295 300  
 Thr Gly Ile Gly Leu Asp Pro Ile Ala Leu His Glu His Glu Leu Thr  
 305 310 315 320  
 Val Tyr Ala Met Gln Arg Leu Lys Glu Ile Pro Asn Met Arg Ile Phe  
 325 330 335  
 Gly Glu Ala Glu His Lys Ser Ser Val Ile Ser Phe Leu Val Gly Asp  
 340 345 350  
 Ile His His Leu Asp Leu Gly Thr Leu Leu Asp Arg Leu Gly Ile Ala  
 355 360 365  
 Val Arg Thr Gly His His Cys Ala Glu Pro Leu Met Arg Arg Leu Gly  
 370 375 380  
 Ile Glu Gly Thr Val Arg Ala Ser Phe Ala Val Tyr Asn Thr Lys Glu  
 385 390 395 400  
 Glu Val Asp Ala Leu Val Ala Gly Ile Glu Arg Val Ser Lys Met Phe  
 405 410 415

<210> 5290  
 <211> 67  
 <212> PRT  
 <213> B.fragilis

<400> 5290  
 Ala Arg Phe Val Cys Thr Phe Ile Leu Arg Tyr Leu Asn Pro Gly Met  
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 Leu Leu Lys Ile Leu Ala Ile Ala Gly Gly Ala Phe Thr Leu Gly Val  
 20 25 30  
 Ile Phe Leu Gln Asp Ile Trp Gly Leu Tyr Cys Leu Val Ala Val Ser  
 35 40 45  
 Ala Cys Met Ser Leu Met Phe Pro Thr Ile Tyr Gly His Cys Ser Ser  
 50 55 60  
 Trp Phe Gly  
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<210> 5291  
 <211> 695  
 <212> PRT  
 <213> B.fragilis

<400> 5291  
 Tyr Gln Lys Ser Asn Cys Met Asn Glu Arg Ile Asn Tyr Leu Lys Thr  
 1 5 10 15  
 Tyr Ile Leu Asp Lys Arg His His Ser Gln Arg Arg Thr Pro Ser Ser  
 20 25 30  
 Ile Gly Leu Asp Lys Leu Asn Thr Ile Tyr Ala Gln Gln Gly Leu Ser  
 35 40 45  
 Pro Val Glu Arg Thr Thr Ala Cys Phe Ala Ala Leu Met Asn Ala Glu  
 50 55 60  
 Leu Pro Val Ile Leu Pro Gly Glu Lys Ile Val Phe Thr Arg Thr Leu

65		70		75		80									
Thr	Gln	Val	Pro	Asp	Ile	Tyr	Thr	Pro	Glu	Glu	Trp	Asn	Glu	Ile	Lys
				85					90					95	
Asn	Lys	Tyr	Tyr	Ile	His	Glu	Lys	Gly	Thr	Val	Cys	Asn	Ile	Ser	Pro
			100					105					110		
Asn	Tyr	Ala	Tyr	Thr	Ile	Gln	His	Gly	Leu	Glu	Ala	Arg	Lys	Gln	Glu
			115				120					125			
Ile	Arg	Lys	Arg	Gln	Glu	Asn	Pro	Ser	Leu	Asn	Glu	Arg	Glu	Arg	Val
			130				135				140				
Phe	Leu	Asn	Ser	Met	Tyr	Gln	Cys	Ile	Ile	Ser	Leu	Gln	Lys	Leu	Ile
145					150					155					160
Glu	Lys	Tyr	Glu	Gln	Tyr	Ala	Leu	Leu	Asn	Asn	Glu	Thr	Glu	Ile	Ala
				165					170					175	
His	Thr	Leu	His	Thr	Ile	Lys	Thr	Glu	Gly	Ala	Gln	Asn	Phe	Arg	Gln
			180					185					190		
Ala	Leu	Gln	Leu	Leu	Arg	Ile	Leu	His	Phe	Ser	Ile	Trp	Glu	Ala	Gly
			195				200					205			
Asn	Tyr	His	Asn	Thr	Leu	Gly	Arg	Phe	Asp	Gln	Tyr	Met	Tyr	Pro	Phe
			210			215					220				
Tyr	Gln	Arg	Asp	Leu	Glu	Asn	Gly	Thr	Leu	Thr	Lys	Glu	Glu	Ala	Phe
225				230						235					240
Asp	Leu	Leu	Glu	Glu	Phe	Phe	Leu	Val	Cys	Asn	Lys	Asp	Ser	Asp	Leu
				245					250					255	
Tyr	Pro	Gly	Met	Gln	Gln	Gly	Asp	Asn	Gly	Gln	Ser	Leu	Val	Leu	Gly
			260					265					270		
Gly	Arg	Asp	Pro	Glu	Gly	Lys	Tyr	Leu	Phe	Asn	Asp	Leu	Ser	Arg	Met
		275					280					285			
Cys	Leu	Gln	Ala	Ser	Tyr	Glu	Leu	Lys	Leu	Ile	Asp	Pro	Lys	Ile	Asn
		290				295					300				
Ile	Arg	Val	Ala	Pro	Lys	Thr	Pro	Asp	Glu	Ile	Phe	Thr	Leu	Gly	Ser
305				310						315					320
Arg	Leu	Thr	Lys	Ile	Gly	Leu	Gly	Phe	Pro	Gln	Tyr	Ser	Asn	Asp	Asp
				325					330					335	
Ile	Ile	Ile	Pro	Gly	Leu	Ile	Arg	Lys	Gly	Tyr	Ser	Lys	Glu	Asp	Ala
			340					345					350		
Tyr	Asn	Tyr	Val	Val	Ala	Ala	Cys	Trp	Glu	Phe	Ile	Ile	Pro	Asn	Arg
		355					360						365		
Ala	Met	Asp	Ile	Pro	Asn	Ile	Asp	Ala	Val	Ser	Leu	Ile	Gly	Cys	Val
		370				375					380				
Asp	Arg	Cys	Leu	Glu	Lys	Leu	Asn	Thr	Cys	Ser	Asn	Tyr	Ser	Ser	Phe
385					390					395					400
Tyr	Thr	Leu	Val	Glu	Gln	Glu	Ile	Gln	Lys	Glu	Val	Asn	Ala	Ile	Cys
				405				410						415	
Glu	Lys	His	Arg	Asn	Leu	Tyr	Ile	Ile	Pro	Ser	Pro	Met	Met	Ser	Leu
			420				425						430		
Leu	Met	Asp	Gly	Thr	Ile	Glu	Arg	Ala	Lys	Asp	Ile	Ser	Glu	Gly	Ser
		435					440					445			
Tyr	Tyr	Asn	Asn	Tyr	Gly	Ile	His	Gly	Thr	Gly	Ile	Ala	Thr	Ala	Thr
		450				455					460				
Asp	Thr	Leu	Ala	Ala	Leu	Lys	Lys	Tyr	Tyr	Phe	Glu	Glu	Gln	Ser	Leu
465				470						475					480
Asp	Tyr	Thr	Thr	Leu	Leu	Thr	Ala	Ile	Arg	Ser	Asn	Phe	Lys	Gly	Tyr
				485				490						495	
Glu	Glu	Leu	Gln	Lys	Lys	Leu	Arg	Glu	Ala	Pro	Lys	Met	Gly	Gln	
			500					505				510			
Asp	Asn	Asp	Tyr	Ala	Asp	Leu	Ile	Ala	Lys	Asp	Leu	Leu	Asp	Ser	Phe
			515				520					525			
Asp	Arg	Ser	Leu	Ala	Asp	Lys	Arg	Asn	Glu	Arg	Gly	Gly	Val	Tyr	Arg
			530			535					540				



Pro Val Arg Glu Ser Asp Tyr Tyr Asn Leu Ala Thr Phe Trp Ile Glu  
 260 265 270  
 Asn Arg Gly His His Cys Gly Phe Pro Leu Trp Gly Thr Trp Gly Tyr  
 275 280 285  
 Arg Lys Ser Glu Lys Trp Ile Lys Asp Ala Cys Tyr His Gln Ala Glu  
 290 295 300  
 Phe Gly Thr His Ser Arg Pro Ser Trp Gly Glu Tyr Ser Gln Asp Ser  
 305 310 315 320  
 Ile Pro Val Leu Glu Gln Lys Thr Ile Glu Gly His Ala Val Arg Ala  
 325 330 335  
 Thr Leu Met Ala Thr Gly Leu Thr Ala Ala Ala Leu Glu Asn Gln Ser  
 340 345 350  
 Pro Gln Tyr Ile Glu Thr Ala Lys Arg Leu Trp Glu Asn Met Ala Gly  
 355 360 365  
 Lys Arg Met Phe Ile Thr Gly Gly Val Gly Ala Ile His Glu Asp Glu  
 370 375 380  
 Lys Phe Gly Pro Asp Tyr Phe Leu Pro Thr Asp Ala Tyr Leu Glu Thr  
 385 390 395 400  
 Cys Ala Ala Val Gly Ala Gly Phe Phe Ser Gln Arg Met Asn Gln Leu  
 405 410 415  
 Thr Cys Asn Ala Arg Tyr Met Asp Glu Val Glu Arg Val Leu Tyr Asn  
 420 425 430  
 Asn Val Leu Thr Gly Val Ser Leu Ser Gly Asp Lys Tyr Thr Tyr Gln  
 435 440 445  
 Asn Pro Leu Asn Thr Asp Lys Pro Asp Arg Trp Glu Trp His Val Cys  
 450 455 460  
 Pro Cys Cys Pro Pro Met Phe Leu Lys Ile Met Ala Ala Met Pro Gly  
 465 470 475 480  
 Tyr Ile Tyr Ala Tyr Gln Gly Asp Asn Val Tyr Val Asn Leu Phe Ile  
 485 490 495  
 Gly Ser Glu Val Arg Ile Pro Val Gly Asp Asn Ser Val Arg Leu Lys  
 500 505 510  
 Gln Leu Thr Ser Tyr Pro Trp His Gly Ala Val Ser Ile Gln Val Asn  
 515 520 525  
 Pro Asp Lys Ala Ser Thr Phe Ser Met Lys Val Arg Ile Pro Gly Trp  
 530 535 540  
 Ala Gln Gly Thr Glu Asn Pro Tyr Asp Leu Tyr Gln Ser Asn Leu Lys  
 545 550 555 560  
 Ala Pro Val Lys Leu Lys Val Asn Gln Glu Asp Val Leu Leu Arg Ile  
 565 570 575  
 Val Asp Gly Tyr Ala Glu Ile Asn Arg Glu Trp Lys Lys Gly Asp His  
 580 585 590  
 Ile Glu Leu Glu Leu Pro Met Gln Pro Arg Leu Ile Thr Ala Asn Lys  
 595 600 605  
 Ala Val Glu Asn Leu Arg Gly Gln Val Ala Leu Ala Ser Gly Pro Ile  
 610 615 620  
 Ile Tyr Cys Phe Glu Asp Ala Asp Asn Pro Glu Leu Gln Thr Phe Lys  
 625 630 635 640  
 Leu Gln Ala Gln Thr Pro Leu Glu Leu Ser His Asp Ser Asn Leu Leu  
 645 650 655  
 Asn Gly Val Asn Ile Ile Lys Cys Gln Gly Asp Ile Pro Ala Lys Ala  
 660 665 670  
 Ile Pro Tyr Tyr Ala Val Ala Asn Arg Glu Glu Ser His Ser Tyr Lys  
 675 680 685  
 Val Trp Ile Pro Gln Lys  
 690

&lt;210&gt; 5293

&lt;211&gt; 260

<212> PRT  
<213> B.fragilis

<400> 5293

Lys Asn Ile Ala Ala Phe Gly Ile Ser Leu Arg Leu Lys Asp Ile Lys  
1 5 10 15  
Asp Leu Thr Met Gln Lys Phe Arg Leu Thr Met Leu Phe Ile Ile Cys  
20 25 30  
Gly Asn Gly Phe Ala Tyr Ala Gln Thr Phe Asn Glu Thr Pro Ile Pro  
35 40 45  
Ala Phe Thr Leu His Lys Glu Met Lys Thr Pro Gln Ile Phe Lys Leu  
50 55 60  
Pro Glu Ile Lys Asn Thr Leu Ser Glu Thr Asn Pro Ala Phe Asn Asn  
65 70 75 80  
Ser Met Pro Leu Val Lys Gln Tyr Glu Leu Arg Lys Lys Phe Ser Tyr  
85 90 95  
Leu Asp Pro Val Phe Thr Gly Tyr Phe Asn Gln Gln Gln Tyr Arg Leu  
100 105 110  
Phe Asn Ser Arg Tyr Phe Gly Tyr Glu Leu Tyr Gly Ser Ser Tyr Ser  
115 120 125  
Leu Arg Gly Val Gly Thr Gln Asn Met Ala Gly Gly Arg Leu Val Tyr  
130 135 140  
Arg Leu Asn Arg Gln Leu Ala Ile Arg Ile Gly Gly Asn Ala Tyr Gln  
145 150 155 160  
Tyr Arg Ser Asn Gly Arg Met Phe Asn Asp Phe Thr Leu Asn Ala Asp  
165 170 175  
Leu Thr Tyr Arg Leu Asn Asn Trp Leu Thr Ala Tyr Ile Tyr Gly Gln  
180 185 190  
Tyr Arg Leu Asp Cys Asn Pro Asn Ser Gly Val Gln Gly Phe Pro Leu  
195 200 205  
Ser Pro Gln Ser His Tyr Gly Ala Ser Phe Arg Ile Asn Leu Leu Glu  
210 215 220  
Arg Lys Glu Tyr Gly Leu Asp Leu Asn Leu Gly Thr Asp Arg Ser Tyr  
225 230 235 240  
Asn Ala Ala Thr Arg Gln Trp Glu Asn Thr Tyr Lys Ile Gly Pro Thr  
245 250 255  
Ile Arg Leu Lys  
260

<210> 5294  
<211> 263  
<212> PRT  
<213> B.fragilis

<400> 5294

Asn Ile Met Tyr Ile Phe Ala Ile Val Asn Pro Asn Thr Met Lys Thr  
1 5 10 15  
Gly Thr Ile Phe Ser Val Glu Glu Phe Ala Ile His Asp Gly Pro Gly  
20 25 30  
Ile Arg Thr Thr Ile Phe Leu Lys Gly Cys Pro Leu Arg Cys Ala Trp  
35 40 45  
Cys His Asn Pro Glu Gly Ile Ser Pro Gln Pro Gln Tyr Met Ile Lys  
50 55 60  
Lys Gly Val Lys Ser Ile Cys Gly Tyr Gln Ile Thr Val Glu Glu Leu  
65 70 75 80  
Val Thr Met Ile Glu Lys Asn Arg Ser Ile Tyr Thr Leu Asn Arg Gly  
85 90 95  
Gly Val Thr Leu Thr Gly Gly Glu Pro Leu Phe Gln Pro Asp Phe Val  
100 105 110



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<210> 5297
<211> 88
<212> PRT
<213> B.fragilis
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<211> 1368
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<213> B.fragilis
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1				5					10					15	
Thr	Phe	Val	Leu	Tyr	Val	Ile	Lys	Arg	Arg	Met	Lys	Lys	Ser	Thr	Phe
			20					25					30		
Thr	Leu	Ile	Leu	Phe	Phe	Ser	Ser	Val	Ile	Leu	Tyr	Ala	Gln	Gln	Asn
		35					40					45			
Glu	Leu	Met	Phe	His	Ser	Leu	Gly	Ser	Gln	His	Gly	Leu	Thr	Tyr	Ser
	50					55					60				
Ala	Val	Arg	Asp	Ile	Leu	Gln	Asp	Ser	Lys	Gly	Tyr	Ile	Trp	Ile	Ala
65				70						75					80
Thr	Leu	Lys	Gly	Leu	Asn	Arg	Tyr	Asp	Gly	Tyr	Asn	Ile	Lys	Gln	Tyr
			85						90					95	
Tyr	Lys	Ser	Asp	Asp	Gly	Leu	Ser	Ser	Asn	Cys	Ile	Glu	Lys	Leu	Leu
		100						105					110		
Leu	Leu	Gly	Gln	Asp	Thr	Leu	Leu	Met	Gly	Thr	Asn	Glu	Gly	Leu	Cys
		115					120					125			
Leu	Tyr	Asp	Met	Met	Arg	Glu	Lys	Phe	Thr	Thr	Ile	Val	Pro	Gln	Thr
	130					135					140				



Lys	Ala	Pro	Leu	Tyr	Val	Leu	Asp	Met	Ala	Tyr	Asp	Gly	Arg	Ser	Val
145					150					155					160
Phe	Ile	Ala	Ser	Asp	Ser	Gly	Leu	Tyr	Val	Tyr	Asn	Lys	Thr	Glu	Gln
				165					170						175
Ser	Met	Pro	Leu	Leu	His	Lys	Gly	Leu	Ile	Val	Lys	Val	Thr	Leu	Asp
			180					185					190		
Ile	Asn	Gly	Asn	Val	Trp	Ala	Val	Ser	Pro	Asn	Thr	Ile	Tyr	Cys	Phe
		195					200					205			
Arg	Pro	Asn	Gly	Gln	Met	Thr	Arg	Lys	Ile	Thr	Ala	Thr	Glu	Val	Ser
	210					215					220				
Pro	Asp	Tyr	Pro	Val	Glu	Phe	Thr	Ser	Ile	Tyr	Lys	Asp	Ser	Gln	Gly
225					230					235					240
Thr	Leu	Trp	Leu	Gly	Thr	Thr	Glu	Asn	Gly	Leu	Tyr	Arg	Tyr	Asn	Lys
				245					250					255	
Asn	Tyr	Asn	Gln	Phe	Val	Ser	Val	Glu	Phe	Ala	Ser	Gln	Asp	Arg	Lys
			260					265					270		
Asp	Met	Arg	Tyr	Ile	Arg	Cys	Ile	Gln	Glu	Asp	Met	Arg	Gly	Asn	Leu
	275						280					285			
Trp	Ile	Gly	Thr	Glu	Asn	Gly	Leu	Phe	Ile	Tyr	Asp	Tyr	Thr	Asp	Asn
290					295						300				
Ser	Tyr	Ile	Gln	Tyr	Arg	Gln	His	Ala	Lys	Asp	Val	Gln	Ser	Gly	Leu
305					310					315					320
Thr	Asp	Asn	Ala	Ile	Tyr	Thr	Ile	Tyr	Lys	Ser	Arg	Gly	Asp	Ile	Met
			325						330					335	
Trp	Ile	Gly	Thr	Phe	Phe	Gly	Gly	Val	Ser	Tyr	Thr	Ser	Leu	Thr	Glu
			340					345					350		
Asn	Asn	Phe	His	Tyr	Leu	Ile	Ala	Asp	Asn	Gly	Lys	Gln	Tyr	Leu	Lys
		355					360					365			
Gly	Lys	Ala	Ile	Ser	Asn	Ile	Ile	Lys	Asp	Lys	Asn	Gly	Ala	Leu	Trp
	370					375					380				
Phe	Ala	Ser	Glu	Asp	His	Gly	Ile	Ser	Ile	Leu	Tyr	Pro	Asp	Gly	His
385					390					395					400
Ile	Arg	Tyr	Leu	Asn	Lys	Ser	Thr	His	Pro	Ser	Leu	Asn	Gly	Asp	Asn
			405						410					415	
Val	His	Ala	Leu	Ala	Glu	Asp	His	Ser	Gly	Asn	Ile	Trp	Ile	Gly	Asn
		420						425					430		
Phe	Ile	Asp	Gly	Leu	Gln	Lys	Val	Asp	Leu	Ala	Lys	Gly	Tyr	Ile	Arg
	435						440					445			
Ser	Tyr	Lys	Asn	Ile	Ala	Gly	Gly	His	Ala	Gly	Leu	Ser	Asn	Asn	Ser
	450					455					460				
Ile	Tyr	Lys	Leu	Tyr	Val	His	Asn	Pro	Asp	Thr	Met	Phe	Ile	Gly	Thr
465					470					475					480
Ser	Gln	Gly	Val	Asn	Ile	Tyr	His	Phe	Arg	Thr	Asp	Ser	Phe	Thr	Pro
			485						490					495	
Phe	Leu	Pro	Asp	Val	Phe	Arg	Leu	Ile	Arg	Ile	Asp	Asp	Ile	Thr	Arg
			500					505					510		
Asp	Leu	Lys	Gly	Asn	Ile	Trp	Phe	Ser	Thr	His	Phe	Asn	Gly	Ile	Phe
	515						520					525			
Arg	Tyr	His	Ile	Pro	Thr	His	Ser	Ile	His	Arg	Tyr	Gln	Lys	Gly	Val
	530					535					540				
Thr	Gly	Cys	Lys	Thr	Met	Thr	Ser	Asp	Asn	Ile	Tyr	Cys	Ser	Phe	Val
545					550					555					560
Asp	Ser	Lys	Gly	Glu	Val	Trp	Phe	Gly	Thr	Ser	Asn	Gly	Gly	Leu	Met
			565						570					575	
Lys	Tyr	Asn	Ala	Arg	Ala	Asp	Ser	Ile	Gln	Ala	Phe	Gly	Lys	Glu	Asn
			580					585					590		
Glu	Leu	Arg	Gln	Arg	Asp	Ile	Tyr	Ser	Ile	Gln	Glu	Asp	Ser	Phe	Gly
		595					600					605			
Tyr	Leu	Trp	Met	Ser	Thr	Asp	Asn	Gly	Ile	Phe	Ser	Phe	Asn	Pro	Glu

610	615	620
Ser Arg Ser Phe Ala His Tyr Lys Val Ser Asp Asn Leu Val Ser Asn		
625	630	635
Gln Phe Asn Ala Cys Pro Gly Tyr Lys Asp Pro Asp Gly Thr Leu Phe		640
	645	650
Phe Gly Ser Ile Asn Gly Val Cys Phe Phe Arg Pro Glu Gly Leu Asn		655
	660	665
His Asn Ser Pro Thr Asn Asp Ile His Leu Thr Phe Ser Asp Phe Arg		670
	675	680
Ile Phe Asn Lys His Val Gln Pro Ser Pro Asp Gly Ile Leu Gln Asn		685
	690	695
Asn Ile Asp Ser Thr Ser Ala Ile Arg Leu Pro His Gly Met Asn Thr		700
705	710	715
Leu Thr Phe Asp Phe Leu Val Ile Asn Tyr Asn Glu Asn Cys Gln Ser		720
	725	730
Gln Leu Ser Cys Glu Tyr Tyr Leu Glu Gly Met Glu Thr Glu Trp Asn		735
	740	745
Ala Thr Gln Gln Ile Pro Gln Ser Val Thr Tyr Thr Asn Leu Asp Pro		750
	755	760
Gly Thr Tyr Gln Phe His Val Arg Val Ile Gly Lys Asn Gly Val Val		765
	770	775
Phe Asp Arg Arg Lys Ile Thr Ile Asn Ile Arg Pro His Phe Leu Leu		780
785	790	795
Ser Gly Phe Met Ile Thr Ile Tyr Ser Leu Ile Gly Leu Leu Ile Ser		800
	805	810
Phe Ile Ile Val Arg Phe Tyr Gln Val Arg Met Arg Asp Lys Met Asp		815
	820	825
Ile Arg Ile Glu Arg Met Glu Lys Asn Asn Leu Arg Glu Leu Asn Lys		830
	835	840
His Lys Leu Asn Phe Phe Thr Tyr Ile Thr His Glu Phe Lys Thr Pro		845
	850	855
Leu Ser Ile Leu Met Ala Val Phe Glu Asp Ile Ser Ile Gly Arg Asn		860
865	870	875
Asn Thr Ile Thr Gly Glu Glu Met Lys Ile Ile Asn Arg Asn Ile Gln		880
	885	890
Arg Leu Gln Phe Leu Ile Asn Gln Leu Leu Glu Phe Arg Ser Val Glu		895
	900	905
Thr Asp His Ala Arg Ile Glu Tyr Val Lys Gly Asp Ile Met Thr Tyr		910
	915	920
Gly Arg Ser Ile Phe Glu Leu Phe Ile Pro Val Phe Arg Gln Lys Gln		925
	930	935
Ile Val Phe Gln Tyr Ala Thr Ser Ala Asp Ser Tyr Tyr Thr Val Phe		940
945	950	955
Asp Arg Asp Lys Ile Glu Lys Ile Ile Ser Asn Leu Leu Ser Asn Ala		960
	965	970
Phe Lys His Ser Asp Pro Gln Ser Glu Ile Asn Phe Arg Ile Asp Val		975
	980	985
Asp Lys Ala Ser Gly Gln Leu Ile Leu Ser Cys His Asn Ser Ser Ser		990
	995	1000
Tyr Ile His Pro Glu Gln Arg Glu Ala Val Met Gln Pro Phe His Lys		1005
	1010	1015
Thr Asp Ser Ser Asp Gln Lys Tyr Ser Asn Thr Gly Ile Gly Leu Ala		1020
1025	1030	1035
Leu Val Asn Gly Leu Val Gln Leu Leu Ser Gly Thr Val Glu Ile Glu		1040
	1045	1050
Ser His Gln Asn Ser Gly Thr Thr Phe Lys Val Lys Leu Pro Leu Val		1055
	1060	1065
Glu Asp Ser Lys Asp Met Ile Ala Pro Asp Glu Thr Leu Asp Ile Val		1070
	1075	1080
		1085

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Asn Ser Pro Asp Val Val Ala Asp Thr Val Tyr Leu Leu Asn Asn Ser  
 1090 1095 1100  
 Gly Leu Lys Glu Asp Met Asn Ala Ala Asn Ala Glu Lys Lys Met Thr  
 1105 1110 1115 1120  
 Val Leu Leu Val Glu Asp Asn Pro Asp Ile Asn Asn Ile Leu Lys Ser  
 1125 1130 1135  
 Lys Leu Leu Arg Leu Tyr Lys Val Lys Thr Ala Tyr Asn Gly Gln Glu  
 1140 1145 1150  
 Ala Val Glu Leu Leu Lys Thr His Ile Ile Asp Ile Ile Ile Ser Asp  
 1155 1160 1165  
 Ile Met Met Pro Tyr Met Asp Gly Tyr Glu Leu Ser Lys Tyr Ile Lys  
 1170 1175 1180  
 Thr Ser Arg Glu Tyr Ser His Ile Pro Val Ile Leu Ile Thr Ser Gln  
 1185 1190 1195 1200  
 Pro Ser Lys Glu Asn Glu Leu Gln Gly Leu Ser Ala Gly Ala Asp Ala  
 1205 1210 1215  
 Tyr Ile Glu Lys Pro Phe Thr Phe Asp Glu Leu Asn Leu Arg Ile Thr  
 1220 1225 1230  
 Asn Leu Leu Lys Ala Lys Asn Asn Ile Arg Glu His Tyr His Asp Met  
 1235 1240 1245  
 Lys Ile Phe Gln Leu Asn Glu Glu Leu Asn Asn Lys Asp Glu Glu Phe  
 1250 1255 1260  
 Ile Lys Ser Leu Thr Gln Phe Val Ile Glu His Ile Glu Asp Pro Glu  
 1265 1270 1275 1280  
 Leu Ser Val Asp Gln Leu Thr Thr His Met Asn Ile Ser Arg Thr Gln  
 1285 1290 1295  
 Leu Tyr Asn Lys Leu Lys Lys Leu Leu Asn Leu Ser Ala Thr Glu Phe  
 1300 1305 1310  
 Ile Asn Lys Ile Lys Ile Asp Val Ala Lys Val Lys Ile Ile Lys Thr  
 1315 1320 1325  
 Asn Leu Thr Ile Ala Glu Ile Ser Trp Gln Leu Gly Phe Asn Asn Pro  
 1330 1335 1340  
 Ser Tyr Phe Ser Lys Thr Phe Lys Arg Phe Cys Gly Val Thr Pro Asn  
 1345 1350 1355 1360  
 Glu Phe Lys Asn Gly Lys Ser Gln  
 1365

<210> 5299  
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 <212> PRT  
 <213> B.fragilis

<400> 5299  
 His Trp Pro Trp Pro Asn Lys Cys Ser Asp Lys Tyr Glu Gly Ala Leu  
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 Lys His Pro Arg Ile Tyr Leu Lys Ser Phe Asn Tyr Gln Ile Gly Cys  
 20 25 30  
 Gln His Phe Leu Asp Cys Leu Ser Lys Ser Leu Glu Met Gly Gly Cys  
 35 40 45  
 Arg Met Tyr Ile His Gly Thr Leu Val Phe Val Leu Phe Val Glu Asn  
 50 55 60  
 Glu Ser Tyr Gly Leu  
 65

<210> 5300  
 <211> 382  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5300

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 His Val Leu Ala Phe Pro Leu Phe Ala Gln Lys Asn Ala Ala Ala Val  
 20 25 30  
 Thr Leu Asn Leu Ala Lys Ala Val Thr Gln Ser Pro Lys Thr Val Leu  
 35 40 45  
 Met Ser Glu Leu Ala Ser Asp Val Arg Tyr Phe Pro Leu Glu Thr Thr  
 50 55 60  
 Asp Asn Cys Leu Leu Gly Asn Glu Cys Ser Ile Ile Tyr Ala Gly Asn  
 65 70 75 80  
 Ser Ile Ile Ala Gly Asp Ala Gln Thr Arg Ser Phe Tyr Arg Phe Asp  
 85 90 95  
 Lys Asn Gly Lys Phe Met Asn Lys Ile Gly Arg Gln Gly Gln Gly Pro  
 100 105 110  
 Glu Glu Tyr Ala Val Gly Leu Leu Phe Phe Thr Asp Pro Asp Asn Gln  
 115 120 125  
 Lys Leu Tyr Val Gln Asp Phe Gln Asp Ile Ile Cys Tyr Gly Phe Asn  
 130 135 140  
 Gly Lys Phe Leu Arg Arg Ile Pro Ala Pro His Leu Asn Met Gly Thr  
 145 150 155 160  
 Gly Ala Val Asp Gly Gln Gly Ser Ile Leu Tyr Cys Asp Asn Asn Tyr  
 165 170 175  
 Phe Met Arg Lys Asp Asn Pro Gln Gln Leu Phe Leu Ile Asp Glu Asn  
 180 185 190  
 Gly Lys Lys Leu Lys Ile Trp Lys Gly Tyr Met Glu Pro Gly Lys Lys  
 195 200 205  
 Tyr Gly Val Asn Leu Ser Thr Arg Asp Val Met Tyr Arg Tyr Gly Gly  
 210 215 220  
 Asp Ile Tyr Phe Lys Pro Ala Leu Glu Asn Leu Ile Tyr Lys Ile Asp  
 225 230 235 240  
 Ala Asn Arg Lys Lys Thr Leu Ala Trp Lys Phe Asp Cys Ser Gly Lys  
 245 250 255  
 Asp Val Asp Val Ser Ala Asn Glu Ile Asp Pro Gly Lys Arg Phe Gln  
 260 265 270  
 Ser Ile Ala Val Gln Gln Val Phe Glu Ser Asp Arg Tyr Phe Phe Val  
 275 280 285  
 Leu Tyr Val Leu Lys Asn Glu Ser Phe Val Gly Leu Tyr Asp Lys Gln  
 290 295 300  
 Lys Lys Ser Phe Ser Asn Val Ile Ile Lys Asp Asp Leu Ala Ala Gly  
 305 310 315 320  
 Phe Asp Phe Thr Pro Pro Gly Thr Gly Leu Gly Ser Gln Leu Ala Asn  
 325 330 335  
 Ala Arg Met Val Gly Tyr Leu Ser Lys Gly Lys Arg Tyr Ser Lys Ala  
 340 345 350  
 Leu Leu Pro Glu Arg Lys Lys Glu Leu Asp Glu Leu Ile Asn Arg Leu  
 355 360 365  
 Asp Glu Glu Asp Asn Pro Val Met Val Val Val Thr Leu Lys  
 370 375 380

&lt;210&gt; 5301

&lt;211&gt; 418

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5301

Lys Lys Arg Gly Ile Ile Lys Gly Lys Val Val Glu Lys Gly Thr Tyr  
 1 5 10 15  
 Lys Val Met Leu Lys Ala Glu Asn Ala Leu Gly Thr Asp Thr Gln Glu

	20		25		30										
Leu	Leu	Ile	Asn	Ile	Gly	Asp	Glu	Leu	Leu	Leu	Thr	Pro	Pro	Met	Gly
	35					40						45			
Trp	Asn	Ser	Trp	Asn	Thr	Phe	Gly	Arg	His	Leu	Thr	Glu	Glu	Leu	Leu
	50					55					60				
Leu	Gln	Thr	Ala	Asp	Ala	Met	Val	Glu	Asn	Gly	Met	Arg	Asp	Leu	Gly
65					70					75				80	
Tyr	Ala	Tyr	Ile	Asn	Ile	Asp	Asp	Phe	Trp	Gln	Leu	Pro	Glu	Arg	Gly
			85						90					95	
Ala	Asp	Gly	His	Ile	Gln	Ile	Asp	Lys	Thr	Lys	Phe	Pro	Arg	Gly	Ile
			100					105					110		
Lys	Tyr	Val	Ala	Asp	Tyr	Leu	His	Glu	Arg	Gly	Phe	Lys	Leu	Gly	Ile
	115						120					125			
Tyr	Ser	Asp	Ala	Ala	Asp	Lys	Thr	Cys	Gly	Gly	Val	Cys	Gly	Ser	Tyr
	130					135					140				
Gly	Tyr	Glu	Glu	Ile	Asp	Ala	Arg	Asp	Phe	Ala	Ser	Trp	Gly	Val	Asp
145					150					155				160	
Leu	Leu	Lys	Tyr	Asp	Tyr	Cys	Asn	Ala	Pro	Ala	Gly	Arg	Val	Glu	Ala
				165				170						175	
Met	Glu	Arg	Tyr	Glu	Lys	Met	Gly	Arg	Ala	Leu	Arg	Ala	Thr	Asp	Arg
			180					185					190		
Ser	Ile	Val	Phe	Ser	Ile	Cys	Glu	Trp	Gly	Gln	Arg	Glu	Pro	Trp	Lys
	195						200					205			
Trp	Ala	Lys	Lys	Val	Gly	Gly	His	Leu	Trp	Arg	Val	Ser	Gly	Asp	Ile
	210					215					220				
Gly	Asp	Leu	Trp	Asn	Arg	Ser	Thr	Asp	Glu	Lys	Gly	Gly	Leu	Arg	Gly
225					230					235				240	
Ile	Leu	Asn	Ile	Leu	Glu	Ile	Asn	Ala	Pro	Leu	Ser	Glu	Tyr	Ala	Arg
				245				250						255	
Pro	Gly	Gly	Trp	Asn	Asp	Pro	Asp	Met	Leu	Val	Val	Gly	Ile	Gly	Gly
			260				265					270			
Lys	Ser	Lys	Ser	Ile	Gly	Tyr	Glu	Ser	Glu	Gly	Cys	Thr	Asn	Glu	Gln
	275						280					285			
Tyr	Gln	Ser	His	Phe	Ala	Leu	Trp	Cys	Met	Met	Ala	Ser	Pro	Leu	Leu
	290					295					300				
Cys	Gly	Asn	Asp	Val	Arg	Gln	Met	Asn	Asp	Ser	Thr	Leu	Gln	Ile	Leu
305					310				315					320	
Leu	Asn	Lys	Asp	Leu	Ile	Ala	Ile	Asp	Gln	Asp	Pro	Leu	Gly	Ile	Gln
				325					330					335	
Ala	Glu	Arg	Ala	Ile	Arg	Ala	Asp	His	Tyr	Asp	Val	Trp	Val	Lys	Pro
			340				345					350			
Leu	Ser	Asp	Gly	Ser	Lys	Ala	Ile	Ala	Cys	Leu	Asn	Arg	Ile	Ser	Gly
	355						360					365			
Pro	Val	Asp	Val	Glu	Leu	Asn	Val	Lys	Thr	Val	Glu	Gly	Leu	Ser	Leu
	370					375					380				
Asp	Arg	Val	Tyr	Asp	Val	Ile	Glu	Gly	Ser	Leu	Val	Ala	Glu	Ala	Ser
385					390					395				400	
Thr	Gly	Trp	Val	Val	Lys	Leu	Ala	Pro	Gly	Glu	Cys	Lys	Val	Phe	Ile
				405				410						415	
Cys	Lys														

&lt;210&gt; 5302

&lt;211&gt; 96

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5302

Ile Ile Ile Met Glu Lys Lys Thr Ile Val Ala Arg Val Glu Val Leu

1		5		10		15									
Pro	Gly	Lys	Glu	Gln	Ala	Phe	Leu	Gln	Ala	Ala	Asp	Ala	Leu	Ile	Lys
		20		25		30									
Gly	Thr	Arg	Ala	Glu	Glu	Gly	Asn	Ile	Ser	Tyr	Asn	Leu	Tyr	Gln	Asn
		35		40		45									
Pro	Ser	Gln	Pro	Val	Ala	Phe	Ile	Phe	Tyr	Glu	Glu	Tyr	Lys	Asp	Gln
	50			55		60									
Arg	Ala	Met	Asp	Ile	His	Ala	Ala	Ser	Pro	His	Phe	Gln	Ala	Phe	Gly
65				70		75									80
Lys	Ala	Ile	Lys	Glu	Met	Leu	Ala	Ser	Asp	Leu	Ile	Ile	Glu	Thr	Phe
			85			90								95	

&lt;210&gt; 5303

&lt;211&gt; 1060

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; UNSURE

&lt;222&gt; (916)

&lt;223&gt; Identity of amino acid sequences at the above locations are unknown.

&lt;400&gt; 5303

Ile	Thr	Asn	Ile	Met	Asn	Leu	Lys	Asp	Leu	Asn	Asn	Leu	Arg	Ala	Asp
1			5			10							15		
Thr	Glu	Gly	Arg	Ile	Lys	Ala	Val	Phe	Leu	Ile	Cys	Met	Phe	Val	Leu
			20			25							30		
Val	Ser	Ala	Gly	Gly	Phe	Ala	Gln	Asn	Thr	Lys	Ser	Ile	Ser	Gly	Thr
		35				40						45			
Val	Arg	Glu	Lys	Gly	Ser	Asn	Glu	Thr	Val	Ile	Gly	Ala	Thr	Val	Gln
	50				55						60				
Val	Lys	Gly	Thr	His	Asn	Gly	Val	Ile	Thr	Asn	Glu	Asn	Gly	Glu	Tyr
65				70		75									80
Thr	Ile	Lys	Asn	Val	Ser	Pro	Gly	Gln	Val	Leu	Val	Phe	Ser	Met	Ile
			85			90								95	
Gly	Met	Asn	Thr	Val	Glu	Lys	Thr	Val	Gly	Ser	Gln	Asn	Arg	Ile	Asp
		100				105							110		
Val	Leu	Met	Asp	Ala	Gly	Val	Leu	Ile	Asp	Glu	Val	Val	Val	Thr	Gly
	115					120						125			
Tyr	Gln	Thr	Gln	Arg	Lys	Val	Asp	Leu	Thr	Gly	Ser	Val	Ser	Ser	Leu
	130				135						140				
Ser	Ser	Asp	Gln	Phe	Met	Gln	Thr	Asn	Pro	Leu	Ser	Leu	Glu	Gln	Ala
145				150						155					160
Leu	Lys	Gly	Lys	Ile	Ser	Gly	Val	Gln	Val	Met	Asn	Asn	Asp	Gly	Ala
			165			170								175	
Pro	Gly	Gly	Gly	Ile	Thr	Ile	Lys	Ile	Arg	Gly	Ala	Ser	Ser	Ile	Thr
			180			185								190	
Ala	Gly	Ser	Ser	Pro	Leu	Tyr	Val	Ile	Asp	Gly	Phe	Pro	Leu	Pro	Ile
	195					200						205			
Ser	Asp	Asp	Pro	Leu	Glu	Ser	Pro	Leu	Ala	Thr	Ile	Ser	Pro	Asp	Ala
	210					215						220			
Ile	Glu	Ser	Ile	Ser	Ile	Leu	Lys	Asp	Val	Ser	Ser	Thr	Ala	Ile	Tyr
225					230					235					240
Gly	Ala	Gln	Gly	Ala	Asn	Gly	Val	Val	Leu	Ile	Thr	Thr	Lys	Lys	Gly
			245						250					255	
Ser	Ala	Gly	Met	Ser	Glu	Ile	Ser	Val	Lys	Ala	Thr	Tyr	Gly	Ile	Ser
		260					265						270		
Lys	Leu	Ala	Asn	Ser	Ile	Pro	Met	Leu	Gly	Ala	Glu	Asp	Tyr	Met	Arg
	275					280						285			

Ala	Tyr	Met	Arg	Asp	Met	Ile	Met	Ser	Gly	Arg	Trp	Gln	Asn	Ala	Asp
290						295					300				
Phe	Tyr	Gln	Glu	Tyr	Lys	Asp	Gln	Ile	Trp	Asn	Thr	Asn	Pro	Ser	Arg
305					310					315					320
Phe	Gln	Phe	Tyr	Pro	Asp	Leu	Cys	Leu	Gln	Asn	Gly	Thr	Lys	Gln	Asn
				325					330					335	
Tyr	Glu	Val	Ser	Tyr	Arg	Gly	Gly	Thr	Asp	Arg	Ile	Gln	Asn	Ser	Thr
			340					345					350		
Ile	Phe	Ser	Leu	Met	Asn	Glu	Asp	Gly	Ile	Ala	Ile	Asn	Thr	Gly	Phe
		355					360					365			
Lys	Arg	Phe	Tyr	Phe	Gln	Thr	Asn	Asn	Ser	Ile	Lys	Leu	Leu	Pro	Gln
	370					375					380				
Leu	Thr	Leu	Asn	Thr	Asn	Leu	Ser	Tyr	Glu	His	Asn	Ile	Arg	Ser	Gly
385					390					395					400
Ala	Phe	Trp	Thr	Glu	Gly	Asn	Ile	Phe	Asn	Glu	Ile	Gln	Thr	Phe	Ser
				405					410					415	
Pro	Leu	Val	Pro	Lys	Glu	Trp	Thr	Phe	Gln	Glu	Ile	Asp	Asp	Asn	Leu
			420					425					430		
Tyr	Tyr	Thr	Gly	Lys	Met	Asp	Asn	Pro	Tyr	Arg	Lys	Leu	Lys	Asp	Ile
		435				440						445			
Asp	Tyr	Ser	Asn	Lys	Asn	Asn	Thr	Phe	Phe	Gly	Gln	Ala	Glu	Leu	Val
	450					455					460				
Tyr	Asn	Ile	Asn	Asp	Asn	Trp	Phe	Val	Lys	Gly	Gly	Ile	Gly	Val	Arg
465					470					475					480
Ile	Pro	Lys	Gly	Glu	Val	Lys	Glu	Phe	Ile	Pro	Lys	Thr	Ile	Gln	Arg
				485					490					495	
Gly	Tyr	Asp	Asn	Asn	Gly	Leu	Ala	Thr	Tyr	Ala	Thr	Gln	Ser	Gly	Leu
			500					505					510		
Asn	Met	Arg	Gly	Val	Val	Gln	Ala	Gly	Phe	Asn	Lys	Val	Phe	Asn	Lys
		515					520						525		
Val	His	Ser	Leu	Ser	Val	Asn	Ala	Val	Tyr	Glu	Ala	Asn	Thr	Asn	Lys
	530					535					540				
Tyr	Glu	Thr	Phe	Asn	Gln	Glu	Tyr	Ser	Gln	Phe	Asn	Thr	Asp	Leu	Gly
545					550					555					560
Trp	Glu	Gly	Ile	Tyr	Asp	Ala	Lys	Ser	Gly	Asn	His	Val	Lys	Ser	Pro
				565					570					575	
Gly	Val	Ser	Tyr	Glu	Lys	Ile	Ala	Met	Leu	Ser	Gly	Val	Leu	Met	Ala
			580					585					590		
Asn	Tyr	Ser	Tyr	Lys	Gly	Arg	Tyr	Leu	Leu	Lys	Ala	Ser	Met	Arg	Ala
	595						600					605			
Asp	Gly	Ser	Ser	Lys	Phe	Ser	Pro	Asp	Asn	Arg	Trp	Gly	Phe	Phe	Pro
	610					615					620				
Ser	Gly	Ala	Leu	Gly	Trp	Arg	Val	Ser	Glu	Glu	Glu	Phe	Phe	Lys	Asn
625					630					635					640
Val	Ser	Trp	Leu	Glu	Lys	Asn	Val	Asn	Asn	Leu	Lys	Leu	Arg	Phe	Ser
				645					650					655	
Tyr	Gly	Gln	Val	Gly	Asn	Asp	Gln	Ile	Ala	Pro	Tyr	Ala	Tyr	Ala	Gln
			660					665					670		
Thr	Leu	Ser	Ser	Ser	Gln	Arg	Gln	Ala	Ile	Phe	Gly	Asp	Gly	Ala	Ile
		675				680						685			
Pro	Ala	Leu	Phe	Thr	Ser	Arg	Met	Ala	Asn	Pro	Glu	Ile	Ser	Trp	Glu
	690					695					700				
Val	Thr	Glu	Glu	Phe	Asn	Gly	Gly	Leu	Asp	Leu	Asp	Met	Phe	Asn	Asn
705					710					715					720
Arg	Leu	Asn	Ile	Ser	Leu	Asp	Leu	Tyr	Thr	Lys	Thr	Thr	Arg	Asp	Met
				725					730					735	
Leu	Leu	Glu	Gln	Asn	Leu	Pro	Arg	Thr	Ser	Gly	Phe	Gly	Lys	Val	Thr
			740					745					750		
Arg	Asn	Ile	Gly	Ser	Val	Arg	Asn	Arg	Gly	Phe	Glu	Ile	Ser	Val	Gly

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      755              760              765
Gly Val Leu Ile Asp Lys Lys Asp Phe Thr Trp Asn Ala Thr Val Asn
770              775              780
Phe Ser Ser Asn Gln Ser Lys Val Leu Ser Leu Gly Ala Glu Thr Gln
785              790              795              800
Met Leu Glu Gly Arg Pro Val Gly Ser Ala Ser Gly Ser Glu Asn Val
      805              810              815
Leu Ile Lys Lys Gly Tyr Pro Leu Gly Leu Phe Tyr Gly Leu Gln Met
      820              825              830
Glu Gly Ile Arg Ser Asn Trp His Ser Asp Tyr Asn Gly Ile Gly Ser
      835              840              845
Ala Asp Ser Pro Trp Trp Tyr Ala Thr Glu Arg Glu Met Pro Tyr Gly
      850              855              860
Phe Pro Ser Phe Ala Asp Thr Asn Gly Asp Gly Lys Val Asp Met Ser
865              870              875              880
Asp Arg Val Val Ile Gly Asp Val Asn Pro Val Phe Ile Gly Gly Leu
      885              890              895
Asn Thr Arg Leu Arg Trp Lys Phe Ile Glu Leu Ala Met Glu Phe Ser
      900              905              910
Trp Ser Tyr Xaa Asn Asp Ile Ser Asn Gly Asn Val Tyr His Leu Met
      915              920              925
Thr Asn Gly Asp Ile Arg Asn Lys Ser Ala Val Tyr Tyr Lys Asp Ala
      930              935              940
Trp Phe Ala Asn Asn Pro Thr Gly Thr Leu Gln Gly Pro Gly Ala Ile
945              950              955              960
Asp Trp Ser Gly Tyr Met Trp Ala Ala Ser Asn Ser Glu Met Val Glu
      965              970              975
Asp Gly Ser Phe Leu Lys Met Asn Asn Leu Ala Val Thr Phe Arg Met
      980              985              990
Pro Lys Asn Ile Leu Lys Ala Trp Lys Ile Lys Asp Leu Ala Leu Thr
      995              1000              1005
Tyr Thr Ile Asn Asn Val Phe Cys Leu Thr Asn Tyr Ser Gly Tyr Asp
      1010              1015              1020
Pro Glu Val Arg Ser Gly Ser Ser Val Asn Asn Arg Ile Leu Pro Gly
      1025              1030              1035              1040
Val Asp Ile Ser Ala Tyr Pro Tyr Ala Arg Ser His Ile Phe Ser Leu
      1045              1050              1055
Asn Phe Lys Tyr
      1060

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&lt;210&gt; 5304

&lt;211&gt; 382

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5304

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Thr Lys Asn Met Asn Arg Met Lys Thr Lys Leu Ile Ile Leu Leu Ile
1              5              10              15
Leu Thr Thr Met Ile His Thr Asn Thr Val Asn Ala Gln His Ser Gln
      20              25              30
Leu Lys Arg Ala Asp Phe Gln Gln Thr Ile Asp Gly Lys Gln Thr Asp
      35              40              45
Leu Tyr Phe Leu Arg Asn Lys Asn Gly Ile Glu Ile Ala Ile Thr Asn
      50              55              60
Phe Gly Gly Arg Val Val Glu Phe Trp Thr Pro Asp Lys Lys Gly His
      65              70              75              80
Phe Glu Asp Ile Val Leu Gly His Asp His Val Asp Lys Tyr Leu His
      85              90              95
Tyr Lys Gly Glu Arg Phe Leu Gly Ala Thr Ile Gly Arg Tyr Gly Asn

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	100		105		110
Arg	Ile Asn Lys Gly Lys Phe Thr	Leu Asn Gly Gln Thr	Tyr Gln Leu		
	115	120	125		
Pro	Ile Asn Asp Thr Pro Asn Ser	Leu His Gly Gly Phe	Lys Gly Phe		
	130	135	140		
Asp	Met Val Val Trp Asp Val Glu Gln	Pro Asp Ser Gln Thr	Leu Gln		
145		150	155		160
Leu	Thr Tyr Leu Ser Lys Asp Gly Glu	Glu Gly Tyr Pro Gly	Asn Leu		
	165	170	175		
Gln	Val Ser Met Ser Tyr Lys Leu Thr	Asp Lys Asn Glu Phe	Ile Ile		
	180	185	190		
Thr	His Gln Ala Gln Thr Asp Lys Glu	Thr Val Ile Asn Leu Thr	His		
	195	200	205		
His	Ser Phe Phe Asn Leu His Gly Ala	Gly Asn Lys Asp Ile Asn Asp			
	210	215	220		
His	Ile Leu Met Ile Asn Ala Asp Lys	Phe Thr Pro Val Asp Gln Ile			
225		230	235		240
Leu	Ile Pro Thr Gly Ile Leu Gln Asp	Val Glu Gly Thr Pro Met Asp			
	245	250	255		
Phe	Arg Arg Pro Thr Pro Ile Gly Lys	Arg Val Asn Asp Ser Phe Glu			
	260	265	270		
Gln	Leu Glu Phe Gly His Gly Tyr Asp	His Asn Trp Val Leu Asn Arg			
	275	280	285		
Lys	Thr Ser Asn Thr Pro Glu Leu Ala	Ala Thr Val Tyr Glu Pro Ala			
	290	295	300		
Ser	Gly Arg Tyr Leu Glu Val Trp Thr	Thr Glu Pro Gly Leu Gln Phe			
305		310	315		320
Tyr	Gly Gly Asn Phe Phe Asp Gly Thr	Met Thr Gly Lys His Glu Lys			
	325	330	335		
Lys	Tyr Asn Tyr Arg Ala Ser Leu Ala	Leu Glu Thr Gln His Tyr Pro			
	340	345	350		
Asp	Ser Pro Asn Gln Pro Ala Phe Pro	Ser Thr Thr Leu Leu Pro Gly			
	355	360	365		
Asp	Thr Tyr Lys His Ile Cys Ile Tyr	Lys Ile Asn Val Gln			
	370	375	380		

&lt;210&gt; 5305

&lt;211&gt; 271

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5305

Lys	Ser Asn Met Glu Leu Asp Leu Gln Gln Leu Thr Thr Glu Val Cys
1	5 10 15
Arg	Ile Ala Thr Glu Ala Gly Asn Phe Leu Arg Lys Glu Arg Arg Ser
	20 25 30
Phe	Ser Arg Glu Arg Val Val Glu Lys His Ala His Asp Tyr Val Ser
	35 40 45
Tyr	Val Asp Lys Glu Ser Glu Arg Leu Leu Val Ala Gln Leu Ser Ala
	50 55 60
Leu	Leu Pro Glu Ala Gly Phe Ile Ala Glu Glu Gly Ser Ala Val Tyr
65	70 75 80
Lys	Asn Glu Pro Tyr Cys Trp Val Ile Asp Pro Leu Asp Gly Thr Thr
	85 90 95
Asn	Tyr Ile His Asp Asn Ala Pro Tyr Cys Val Ser Ile Ala Leu Arg
	100 105 110
Ser	Cys Thr Glu Leu Leu Leu Gly Val Val Tyr Glu Val Cys Arg Asp
	115 120 125
Glu	Cys Phe Tyr Ala Trp Lys Gly Gly Lys Ala Trp Met Asn Gly Asp

130		135		140
Glu Leu His Val Ser Lys Ile Glu Asn Ile Glu Glu Ala Phe Val Ile				
145		150		155
Thr Glu Leu Pro Tyr Asn His Arg Gln Tyr Lys Arg Thr Ala Glu Tyr				160
	165		170	175
Leu Leu Lys Gln Leu Tyr Gly Val Val Gly Gly Ile Arg Met Asn Gly				
	180		185	190
Ser Ala Ala Ser Ala Leu Cys Tyr Val Ala Ala Gly Arg Phe Asp Ala				
	195	200		205
Trp Ala Glu Ala Phe Ile Gly Lys Trp Asp Tyr Ser Ala Ala Ala Leu				
	210	215		220
Ile Val Leu Glu Ala Gly Gly Lys Val Thr Asp Phe Phe Gly Ser Glu				
225		230		235
Tyr Phe Ile Glu Gly His His Ile Ile Ala Thr Asn Gly Pro Leu His				240
	245		250	255
Pro Val Phe Gln Arg Leu Leu Lys Glu Met Pro Pro Leu Glu Met				
	260	265		270

<210> 5306  
 <211> 95  
 <212> PRT  
 <213> B.fragilis

<400> 5306
Gly Thr Ala Met Lys Lys Ile Leu Leu Ala Leu Leu Thr Ser Cys Ala
1 5 10 15
Leu Val Ser Cys Glu Gly Tyr Phe Asp Gln Leu Pro Lys Thr Glu Leu
20 25 30
Pro Ser Glu Thr Phe Tyr Thr Ser Tyr Asp Ala Ala Leu Arg Asn Val
35 40 45
Ala Ile Leu Tyr Ala Asn Ala Gly His Val Asn Asp Gly Ile Met Thr
50 55 60
Thr Asp Arg Phe Met Met Pro Ser Leu Met Asn Glu Gly Pro Phe Asp
65 70 75 80
Leu Thr Ser Thr Ser Val Phe Thr Thr Gly Leu Gln Gly Cys Thr
85 90 95

<210> 5307  
 <211> 443  
 <212> PRT  
 <213> B.fragilis

<400> 5307
Tyr Ile Cys Ile Met Lys Asn Thr Ala Lys Asn Phe Met Phe Tyr Val
1 5 10 15
Ala Phe Val Ala Ser Leu Gly Gly Leu Leu Phe Gly Phe Asp Thr Ala
20 25 30
Val Ile Ser Gly Ala Glu Lys Ser Ile Gln Val Val Tyr Asp Leu Ser
35 40 45
Asp Phe Ser His Gly Phe Thr Ile Ala Ile Ala Leu Ile Gly Thr Ile
50 55 60
Ile Gly Ala Phe Val Cys Ser Lys Pro Val Glu Lys His Gly Arg Leu
65 70 75 80
Lys Ala Leu Lys Ile Ile Ala Phe Leu Tyr Phe Val Ser Ala Val Gly
85 90 95
Ser Ala Ala Ile Ile Asp Trp Tyr Ser Phe Leu Phe Phe Arg Phe Ala
100 105 110
Gly Gly Leu Ala Val Gly Ala Ser Ser Val Val Gly Pro Met Tyr Ile
115 120 125

Ala Glu Ile Ser Pro Ser Arg Trp Arg Gly Arg Phe Val Ala Phe Phe  
 130 135 140  
 Gln Phe Asn Ile Val Leu Gly Ile Val Leu Ala Tyr Phe Ser Asn Tyr  
 145 150 155 160  
 Trp Ile His Gly Ile Ala His Asp Trp Gln Trp Met Leu Gly Val Glu  
 165 170 175  
 Ala Ile Pro Ala Ile Ala Phe Ala Leu Leu Tyr Thr Val Pro Glu  
 180 185 190  
 Ser Pro Arg Trp Leu Val Lys Gln Asp Arg Glu Ala Glu Ala Arg His  
 195 200 205  
 Val Ile Lys Lys Val Ser Asn Ala Asn Ile Glu Gln Glu Ile His Glu  
 210 215 220  
 Ile Lys Glu Ser Leu Val Thr Ile Gly Ala Ser Gly Glu Lys Leu Phe  
 225 230 235 240  
 Gln His Lys Tyr Arg Lys Pro Ile Leu Tyr Ala Phe Leu Ile Ala Thr  
 245 250 255  
 Phe Asn Gln Leu Ser Gly Ile Asn Ala Ile Leu Tyr Tyr Ala Pro Arg  
 260 265 270  
 Ile Phe Glu Met Ser Gly Val Phe Thr Asp Ser Ala Met Met Gln Ser  
 275 280 285  
 Ile Val Ile Gly Leu Thr Asn Leu Thr Phe Thr Met Ile Gly Met Ile  
 290 295 300  
 Leu Ile Asp Gln Val Gly Arg Lys Lys Leu Tyr Ile Gly Ser Ile  
 305 310 315 320  
 Gly Met Thr Phe Ser Leu Ala Leu Val Ala Lys Gly Phe Tyr Gln Gly  
 325 330 335  
 Ala Phe Ser Gly Tyr Tyr Met Leu Ile Cys Leu Met Gly Phe Ile Ala  
 340 345 350  
 Phe Phe Ala Ile Ser Leu Gly Ala Val Ile Trp Val Leu Ile Ser Glu  
 355 360 365  
 Val Phe Pro Asn Asn Val Arg Ser Lys Gly Gln Val Leu Gly Ser Met  
 370 375 380  
 Thr His Trp Val Trp Ser Ala Leu Leu Ser Trp Met Phe Pro Val Phe  
 385 390 395 400  
 Ile Arg Thr Gly Gly Thr Phe Ile Phe Ser Phe Phe Ala Ile Met Met  
 405 410 415  
 Phe Leu Ser Phe Phe Phe Ala Leu Arg Leu Pro Glu Thr Lys Asn Lys  
 420 425 430  
 Ser Leu Glu Gln Ile Gln Lys Glu Leu Thr Asn  
 435 440

&lt;210&gt; 5308

&lt;211&gt; 65

&lt;212&gt; PRT

&lt;213&gt; B.fragilis .

&lt;400&gt; 5308

Ala Ser Thr Ile Pro Ser Thr Ile Leu Asn Trp Lys Asn Ala Thr Lys  
 1 5 10 15  
 Arg Pro Arg Gln Arg Glu Gly Asp Ile Ser Ala Met Tyr Met Gly Pro  
 20 25 30  
 Thr Thr Asp Glu Ala Pro Thr Ala Lys Pro Pro Ala Lys Arg Lys Asn  
 35 40 45  
 Lys Lys Glu Tyr Gln Ser Met Ala Ala Leu Pro Thr Ala Glu Thr  
 50 55 60  
 Lys  
 65

&lt;210&gt; 5309

<211> 68  
 <212> PRT  
 <213> B.fragilis

<400> 5309

Ser Gln Arg Ser Leu Ser Gln Arg Tyr Cys Ile Phe Ser Asn Ala Thr  
 1 5 10 15  
 Asn Gln Ser Ile Phe Phe Ile Glu Asp Trp His Tyr Leu Leu Val Leu  
 20 25 30  
 Phe Tyr Trp Lys Ser Glu Gly Ile Ser Ile Pro Phe Phe Asn Pro Ile  
 35 40 45  
 Ala Ile Pro Asn Pro Ala Thr Pro Tyr Ser Asp Lys Gln Arg Met Lys  
 50 55 60  
 Asp Asn Arg Ser  
 65

<210> 5310  
 <211> 79  
 <212> PRT  
 <213> B.fragilis

<400> 5310

Lys Asn Phe Pro Tyr Tyr Gly Trp Asp Ala Phe Ala Asn Asp Lys Ser  
 1 5 10 15  
 Lys Gln Asp Ala Ile Val Pro Leu Pro Met Ile Leu Pro Asp Phe Asp  
 20 25 30  
 Ser Gln Glu Arg Cys Tyr Tyr Tyr Ser Ala Gln Pro Val Ile Ser Asp  
 35 40 45  
 Val Cys Glu Ile Ser Arg Asp Tyr Phe Asn Lys Asp Phe Ser Lys Asn  
 50 55 60  
 Tyr Lys Leu Glu Phe Lys Leu Lys Ile Val Asn Tyr Phe Phe Asn  
 65 70 75

<210> 5311  
 <211> 162  
 <212> PRT  
 <213> B.fragilis

<400> 5311

Ile Thr Met Leu Ser Leu Gln Ser Glu Ile Asp Ser Leu Cys Ala Val  
 1 5 10 15  
 Ser His Glu Leu Leu His Leu Gly Leu Asp Gly Glu Pro Ile Tyr Ser  
 20 25 30  
 Asp Arg Phe Arg Gln Leu Asn Thr Asp Val Tyr His Arg Cys Glu His  
 35 40 45  
 Leu Phe Gly Ser His Gly Arg Thr Leu Glu Glu Glu Ala Ser Leu Cys  
 50 55 60  
 Ile Ala Leu Leu Thr Gly Tyr Asn Ala Thr Ile Tyr Asn His Gly Asp  
 65 70 75 80  
 Lys Glu Asp Lys Ile Gln Ser Val Leu Asn Arg Ser Trp Asp Leu Leu  
 85 90 95  
 Asp Thr Leu Pro Val Ser Leu Leu Lys Cys Arg Leu Leu Val Ala Cys  
 100 105 110  
 Tyr Ala Glu Val Phe Asp Glu Glu Leu Ala Ala Glu Ala His Ala Ile  
 115 120 125  
 Ile Asp Gly Trp Lys Asp Arg Glu Leu Thr Arg Glu Glu Phe Glu Ile  
 130 135 140  
 Val Glu His Leu Lys Ser Leu Glu Glu Asn Pro Tyr Pro Asn Thr Asp  
 145 150 155 160

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Ile Glu

&lt;210&gt; 5312

&lt;211&gt; 209

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5312

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Arg Asp Arg Pro Phe Asn Asn Thr Asn His His Asn Ser Asn Lys Ile
1      5      10      15
Met Ala Ala Thr Lys Ile Phe Asn Leu Trp Ala Lys Arg Ser Pro Glu
      20      25      30
Trp Glu Thr Lys Tyr Glu Asp Thr Leu Leu Lys Ala Phe Cys Asp Tyr
      35      40      45
Gly Lys Gly Ser Thr Ser Tyr Gln Glu Thr Arg Ala Lys Leu Phe Gly
      50      55      60
Ala Gly Tyr Glu Leu Tyr Ile Leu Ala Phe Phe Ile Gly Leu Tyr His
      65      70      75      80
Gly Gln Thr Lys Asp Leu Val Ala Asp Lys Ala Lys Arg Lys Asp Phe
      85      90      95
Gly Trp Ala Ile Glu Asn Trp Gly Thr Ala Glu Ala Arg Gly Gly Arg
      100      105      110
Lys Gln Tyr Gly Gln Ile Arg Glu Tyr Met Phe Met Ala Leu Val Ala
      115      120      125
Arg Thr Gly Ile Asp Trp Ile Ala Leu Asp Lys Gly Asp Ile Thr Pro
      130      135      140
Arg Lys Val Val Asp Leu Leu Ile Asp Lys Met Glu Lys Tyr Ala Asn
      145      150      155      160
Phe Gly Phe Asp Phe Met Gln Asp Lys Leu Glu Asp Asn Pro Asp Tyr
      165      170      175
Phe Tyr Lys Glu Thr Ala Phe Leu Gln Val Phe Leu Asn Phe Met Gln
      180      185      190
Pro Ser Thr Ser Glu Asn Ala Glu Glu Glu Glu Ala Glu Ser Leu
      195      200      205
Asp

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&lt;210&gt; 5313

&lt;211&gt; 200

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5313

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Tyr Phe Cys Thr Leu Phe Ser Gln Glu Ile Asp Gln Glu Met Ile Glu
1      5      10      15
Asp Ile Lys Lys Ala Cys Gln Val Met Ser Glu Gly Gly Val Ile Leu
      20      25      30
Tyr Pro Thr Asp Thr Val Trp Gly Ile Gly Cys Asp Ala Thr Asn Glu
      35      40      45
Asp Ala Val Arg Arg Val Tyr Glu Ile Lys Arg Arg Ala Asp Ser Lys
      50      55      60
Ala Met Leu Val Leu Val Asp Ser Pro Val Lys Val Glu Phe Tyr Val
      65      70      75      80
Gln Asp Val Pro Ser Val Ala Trp Asp Leu Ile Glu Val Ala Asp Lys
      85      90      95
Pro Leu Thr Ile Ile Tyr Ser Gly Ala Arg Asn Leu Ala Ser Asn Leu
      100      105      110
Leu Ala Glu Asp Gly Ser Val Gly Ile Arg Val Thr Asn Glu Ala Phe

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115 120 125  
 Ser Arg Arg Leu Cys Gln Gln Phe Arg Lys Ala Ile Val Ser Thr Ser  
 130 135 140  
 Ala Asn Val Ser Gly Gln Pro Gly Ala Ala Asn Phe Asn Glu Ile Ser  
 145 150 155 160  
 Glu Glu Ile Lys Ser Ser Val Asp Tyr Ile Val Asn Phe Arg Gln Asp  
 165 170 175  
 Asp Met Ser Arg Pro Lys Pro Ser Ser Ile Ile Lys Leu Asp Lys Gly  
 180 185 190  
 Gly Val Ile Lys Ile Ile Arg Glu  
 195 200

<210> 5314  
 <211> 640  
 <212> PRT  
 <213> B.fragilis

<400> 5314

Arg Tyr Gln Thr Asp Arg Val Thr Tyr Gln Glu Ile Leu Lys Gln Tyr  
 1 5 10 15  
 Trp Gly Tyr Asp Ser Phe Arg Asp Leu Gln Glu Asp Ile Ile Thr Ser  
 20 25 30  
 Ile Gly Asn Gly Lys Asp Thr Leu Gly Leu Met Pro Thr Gly Gly Gly  
 35 40 45  
 Lys Ser Ile Thr Phe Gln Val Pro Ala Leu Ala Lys Glu Gly Leu Cys  
 50 55 60  
 Ile Val Ile Thr Pro Leu Ile Ala Leu Met Lys Asp Gln Val Gln Asn  
 65 70 75 80  
 Leu Lys Lys Arg Gly Ile Lys Ala Ile Ala Ile Tyr Ser Gly Met Thr  
 85 90 95  
 Arg Gln Glu Ile Val Val Ala Leu Glu Asn Cys Ile Phe Gly Asp Tyr  
 100 105 110  
 Lys Phe Leu Tyr Ile Ser Pro Glu Arg Leu Asp Thr Glu Ile Phe Arg  
 115 120 125  
 Ala Lys Leu Arg Ser Met Lys Ile Ser Met Ile Thr Val Asp Glu Ser  
 130 135 140  
 His Cys Ile Ser Gln Trp Gly Tyr Asp Phe Arg Pro Ala Tyr Leu Lys  
 145 150 155 160  
 Ile Ala Asp Ile Arg Asp Leu Val Pro Asp Ala Pro Val Leu Ala Leu  
 165 170 175  
 Thr Ala Thr Ala Thr Pro Glu Val Val Lys Asp Ile Gln Glu Arg Leu  
 180 185 190  
 Arg Phe Arg Glu Glu Asn Val Phe Arg Met Ser Phe Glu Arg Lys Asn  
 195 200 205  
 Leu Ala Tyr Ile Val Arg Pro Thr Asp Asn Lys Asn Gly Glu Leu Leu  
 210 215 220  
 His Ile Leu Asn Arg Ile Gln Gly Ser Ala Ile Val Tyr Val Arg Ser  
 225 230 235 240  
 Arg Arg Lys Thr Lys Glu Thr Thr Glu Leu Val Asn Glu Gly Ile  
 245 250 255  
 Thr Ala Asp Phe Tyr His Ala Gly Leu Asp Asn Ala Thr Lys Asp Leu  
 260 265 270  
 Arg Gln Lys Arg Trp Gln Asn Gly Glu Ser Arg Val Met Val Ala Thr  
 275 280 285  
 Asn Ala Phe Gly Met Gly Ile Asp Lys Pro Asp Val Arg Ile Val Ile  
 290 295 300  
 His Leu Asp Leu Pro Asp Ser Pro Glu Ala Tyr Phe Gln Glu Ala Gly  
 305 310 315 320  
 Arg Ala Gly Arg Asp Gly Gln Lys Ala Tyr Ala Val Ile Leu Tyr Ala

325 330 335  
 Lys Ser Asp Lys Thr Thr Leu Ser Lys Arg Ile Thr Asp Thr Phe Pro  
 340 345 350  
 Asp Lys Asp Tyr Ile Lys Asp Val Tyr Glu His Leu Gln Tyr His Tyr  
 355 360 365  
 Gln Met Ala Met Gly Asp Gly Leu Gly Cys Met Tyr Asp Phe Ser Leu  
 370 375 380  
 Glu Glu Phe Cys Arg Lys Phe Lys Tyr Phe Pro Val Pro Ala Asp Ser  
 385 390 395 400  
 Ala Leu Lys Ile Leu Thr Gln Ala Gly Tyr Leu Glu Tyr Thr Asp Glu  
 405 410 415  
 Gln Asp Asn Ala Ser Arg Ile Ile Phe Thr Ile Arg Arg Asp Glu Leu  
 420 425 430  
 Tyr Lys Leu Arg Glu Met Gly Glu Ala Ala Glu Lys Leu Ile Gln Met  
 435 440 445  
 Ile Leu Arg Ser Tyr Thr Gly Val Phe Thr Asp Tyr Ala Tyr Ile Ser  
 450 455 460  
 Glu Gln Thr Leu Ala Val Arg Thr Gly Leu Thr Arg Gln Gln Ile Tyr  
 465 470 475 480  
 Asp Leu Leu Val Met Leu Ser Lys Arg Arg Ile Val Asp Tyr Ile Pro  
 485 490 495  
 His Lys Lys Thr Pro Tyr Ile Ile Tyr Thr Arg Glu Arg Ile Asp Leu  
 500 505 510  
 His Tyr Leu Gln Ile Pro Arg Ala Val Tyr Glu Glu Arg Lys Glu Arg  
 515 520 525  
 Tyr Glu Thr Arg Ile His Ala Met Val Glu Tyr Val Thr Ser Glu Asn  
 530 535 540  
 Val Cys Arg Ser Arg Met Leu Leu Arg Tyr Phe Gly Glu Lys Asn Glu  
 545 550 555 560  
 His Asn Cys Gly Gln Cys Asp Val Cys Leu Ser His Arg Ala Glu Pro  
 565 570 575  
 Asp Ile Ser Gln Ser Thr Phe Asp Gly Leu Arg Glu Gln Ile Cys Ala  
 580 585 590  
 Leu Leu Lys Glu His Pro Met Thr Pro Ala Glu Ile Ala Ser His Ile  
 595 600 605  
 Asn Thr Asp Lys Glu Gln Leu Ser Glu Val Ile Arg Phe Met Leu Asp  
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 Glu Gly Leu Leu Ser Ser Glu Asn Gly Leu Leu Thr Glu Lys Thr Ser  
 625 630 635 640

&lt;210&gt; 5315

&lt;211&gt; 579

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5315

Lys Glu Lys Thr Ile Tyr Lys Met Asn His Lys Trp Asn Tyr Arg Pro  
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 Ile Thr Gln Glu Gln Ala Glu Ile Ser Arg Ala Leu Ala Gln Glu Leu  
 20 25 30  
 Gly Ile Ser Pro Val Leu Gly Arg Leu Leu Val Gln Arg Gly Ile Thr  
 35 40 45  
 Lys Ala Gln Asp Ala Lys Lys Phe Phe Arg Pro Gln Leu Pro Asp Leu  
 50 55 60  
 His Asp Pro Phe Leu Met Lys Asp Met Asp Ile Ala Val Glu Arg Leu  
 65 70 75 80  
 Asn Met Ala Met Gly Lys Lys Glu Arg Ile Leu Ile Tyr Gly Asp Tyr  
 85 90 95  
 Asp Val Asp Gly Thr Thr Ala Val Ala Leu Val Tyr Lys Phe Ile Gln

	100		105		110
Gln Phe Tyr Ser Asn Leu Asp Tyr Tyr Ile Pro Asp Arg Tyr Asn Glu					
	115		120		125
Gly Tyr Gly Ile Ser Lys Lys Gly Val Asp Tyr Ala Ala Glu Thr Gly					
	130		135		140
Val Gly Leu Ile Ile Val Leu Asp Cys Gly Ile Lys Ala Val Glu Glu					
	145		150		155
Ile Ala Tyr Ala Lys Glu Lys Gly Ile Asp Phe Ile Ile Cys Asp His					
	165		170		175
His Val Pro Asp Asp Val Leu Pro Pro Ala Val Ala Ile Leu Asn Ala					
	180		185		190
Lys Arg Leu Asp Asn Thr Tyr Pro Tyr Thr His Leu Ser Gly Cys Gly					
	195		200		205
Val Gly Phe Lys Phe Met Gln Ala Phe Ala Ile Ser Asn Gly Ile Glu					
	210		215		220
Phe His His Leu Ile Pro Leu Leu Asp Leu Thr Ala Val Ser Ile Ala					
	225		230		235
Ser Asp Ile Val Pro Ile Met Gly Glu Asn Arg Ile Leu Ala Tyr His					
	245		250		255
Gly Leu Lys Gln Leu Asn Gly Asn Pro Ser Val Gly Leu Lys Ala Ile					
	260		265		270
Ile Asp Val Cys Gly Leu Ser Glu Lys Glu Ile Thr Val Ser Asp Ile					
	275		280		285
Val Phe Lys Ile Gly Pro Arg Ile Asn Ala Ser Gly Arg Ile Gln Asn					
	290		295		300
Gly Lys Glu Ala Val Asp Leu Leu Ile Glu Lys Asp Phe Ser Ala Ala					
	305		310		315
Leu Glu Lys Ala Gly Gln Ile Asn Gln Tyr Asn Glu Thr Arg Lys Asp					
	325		330		335
Leu Asp Lys Ser Met Thr Glu Glu Ala Asn Lys Ile Val Ala Glu Leu					
	340		345		350
Glu Gly Leu Ala Asp Arg Arg Ser Ile Val Leu Tyr Asn Glu Asp Trp					
	355		360		365
His Lys Gly Val Ile Gly Ile Val Ala Ser Arg Leu Thr Glu Ile Tyr					
	370		375		380
Tyr Arg Pro Ala Val Val Leu Thr Arg Thr Asp Asp Met Ala Thr Gly					
	385		390		395
Ser Ala Arg Ser Val Ser Gly Phe Asp Val Tyr Lys Ala Ile Glu His					
	405		410		415
Cys Arg Asp Leu Leu Glu Asn Phe Gly Gly His Thr Tyr Ala Ala Gly					
	420		425		430
Leu Ser Met Lys Val Glu Asn Val Gln Ala Phe Thr Glu Arg Phe Glu					
	435		440		445
Ser Phe Val Ser Glu His Ile Leu Pro Glu Gln Thr Ser Ala Val Ile					
	450		455		460
Asp Ile Asp Ala Glu Ile Asp Phe Lys Asp Ile Thr Pro Lys Phe Phe					
	465		470		475
Asn Glu Leu Lys Arg Phe Asn Pro Phe Gly Pro Asp Asn Gln Lys Pro					
	485		490		495
Val Phe Cys Thr His His Val Tyr Asp Tyr Gly Thr Ser Lys Val Val					
	500		505		510
Gly Arg Asp Gln Glu His Ile Lys Leu Glu Leu Val Asp Asn Lys Ser					
	515		520		525
Asn Asn Val Met Asn Gly Ile Ala Phe Gly Gln Ser Ser His Val Arg					
	530		535		540
Tyr Ile Lys Thr Lys Arg Ser Phe Asp Ile Cys Tyr Thr Ile Glu Glu					
	545		550		555
Asn Thr His Lys Arg Gly Glu Val Gln Leu Gln Ile Glu Asp Ile Lys					
	565		570		575

100 105 110  
 115 120 125  
 130 135 140  
 145 150 155  
 160 165 170  
 175 180 185  
 190 195 200  
 205 210 215  
 220 225 230  
 235 240 245  
 250 255 260  
 265 270 275  
 280 285 290  
 295 300 305  
 310 315 320  
 325 330 335  
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 400 405 410  
 415 420 425  
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[illegible]

<400> 5316

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Ser	Asp	Ser	Tyr 20	Lys	Asn	Asp	Met	Ile 25	Ser	Asn	Ile	Met	Pro 30	Phe	Trp
Met	Lys	Tyr 35	Gly	Trp	Asp	Arg	Lys 40	Asn	Gly	Gly	Val	Tyr 45	Thr	Cys	Val
Asp	Arg	Asp	Gly	Gln	Leu	Met 55	Asp	Thr	Thr	Lys	Ser	Val	Trp	Phe	Gln
Gly 65	Arg	Phe	Ala	Phe	Thr 70	Cys	Ser	Tyr	Ala 75	Tyr	Asn	His	Ile	Glu	Arg 80
Asn	Thr	Glu	Trp	Leu 85	Ala	Ala	Ala	Lys	Ser 90	Thr	Leu	Asp	Phe	Ile 95	Glu
Ala	His	Cys	Phe 100	Asp	Thr	Asp	Gly	Arg 105	Met	Phe	Phe	Glu	Val	Thr 110	Glu
Thr	Gly	Leu 115	Pro	Ile	Arg	Lys	Arg 120	Arg	Tyr	Val	Phe	Ser	Glu	Thr	Phe
Ala	Ala	Ile 130	Ala	Met	Ser	Glu	Tyr 135	Ala	Ile	Ala	Ser	Gly	Asp	His	Ser
Tyr 145	Ala	Val	Lys	Ala 150	Leu	Lys	Leu	Phe	Asn 155	Asp	Ile	Arg	His	Phe	Leu 160
Ser	Thr	Pro	Gly	Ile 165	Leu	Glu	Pro	Lys	Tyr 170	Cys	Glu	Arg	Val	Gln 175	Met
Lys	Gly	His 180	Ser	Ile	Ile	Met	Ile 185	Leu	Ile	Asn	Val	Ala	Ser 190	Arg	Ile
Arg	Ala	Ala 195	Ile	Asn	Asp	Pro	Val 200	Leu	Asp	Arg	Gln	Ile	Glu	Glu	Ser
Ile	Ala	Ile 210	Leu	Arg	Lys	Asp 215	Phe	Met	His	Pro	Glu	Phe	Lys	Ala	Leu
Leu 225	Glu	Thr	Val	Gly 230	Pro	Asn	Gly	Glu	Phe 235	Ile	Asp	Thr	Asn	Ala	Thr 240
Arg	Thr	Ile	Asn 245	Pro	Gly	His	Cys	Ile	Glu 250	Thr	Ser	Trp	Phe	Ile 255	Leu
Glu	Glu	Ala	Lys 260	Asn	Arg	Asn	Trp	Asp 265	Lys	Glu	Met	Val	Asp 270	Thr	Ala
Leu	Thr	Ile 275	Leu	Asp	Trp	Ser	Trp 280	Glu	Trp	Gly	Trp	Asp 285	Lys	Glu	Tyr
Gly	Gly	Ile 290	Ile	Asn	Phe	Arg 295	Asp	Cys	Arg	Asn	Leu 300	Pro	Ser	Gln	Asp
Tyr 305	Ala	His	Asp	Met 310	Lys	Phe	Trp	Trp	Pro	Gln 315	Thr	Glu	Ala	Ile	Ile 320
Ala	Thr	Leu	Tyr 325	Ala	Tyr	Gln	Ala	Thr	Lys 330	Asn	Glu	Lys	Tyr	Leu	Ala
Met	His	Lys	Gln 340	Ile	Ser	Asp	Trp	Thr 345	Tyr	Ala	His	Phe	Pro 350	Asp	Ala
Glu	Phe	Gly 355	Glu	Trp	Tyr	Gly	Tyr 360	Leu	His	Arg	Asp	Gly 365	Thr	Ile	Ser
Gln	Pro	Ala 370	Lys	Gly	Asn	Leu 375	Phe	Lys	Gly	Pro	Phe 380	His	Ile	Pro	Arg
Met 385	Met	Thr	Lys	Gly 390	Tyr	Ala	Leu	Cys	Gln 395	Glu	Leu	Leu	Ser	Glu	Lys 400

<210> 5317  
 <211> 85  
 <212> PRT  
 <213> B.fragilis

<400> 5317

Leu	Val	Phe	Ala	Thr	Phe	Ala	Asn	Cys	Glu	Lys	Thr	Leu	Ser	Phe	Lys
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Gly	Trp	Asn	Cys	Gln	Phe	Met	Ile	Gln	Phe	Tyr	Asn	Glu	Tyr	Asn	Gln
		20						25				30			
Gln	Phe	Thr	Asn	Thr	Lys	Gln	Pro	Val	Ser	Tyr	Leu	Asp	Asp	Val	Ser
		35				40						45			
Leu	Tyr	Leu	Pro	Val	Met	His	Leu	Ser	Trp	Ser	His	Asn	Ile	Val	Leu
	50					55					60				
Met	Gln	Lys	Val	Lys	Asp	Leu	Lys	Ala	Arg	Asn	Trp	Tyr	Met	Ile	Gln
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Ser	Leu	Lys	Asn	Gly											
				85											

<210> 5318  
 <211> 439  
 <212> PRT  
 <213> B.fragilis

<400> 5318

Ile	Ser	Glu	Ala	Met	Asn	Thr	Lys	Tyr	Trp	Glu	Glu	Glu	Ile	Glu	Thr
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Met	Ser	Arg	Lys	Lys	Leu	Gln	Glu	Leu	Gln	Leu	Gln	Arg	Leu	Lys	Lys
		20						25				30			
Thr	Ile	Asn	Ile	Ala	Ala	Asn	Ala	Pro	Tyr	Tyr	Lys	Lys	Val	Phe	Gln
		35				40						45			
Glu	His	Gly	Ile	Thr	Pro	Glu	Ser	Ile	Gln	Ser	Leu	Asp	Asp	Ile	Arg
	50					55				60					
Lys	Leu	Pro	Phe	Thr	Thr	Lys	Ala	Asp	Met	Arg	Ala	Asn	Tyr	Pro	Phe
65				70					75						80
Gly	Leu	Val	Ala	Gly	Asn	Met	Lys	Glu	Asp	Gly	Val	Arg	Ile	His	Ser
			85					90					95		
Ser	Ser	Gly	Thr	Thr	Gly	Thr	Pro	Thr	Val	Ile	Val	His	Ser	Gln	His
		100						105					110		
Asp	Leu	Asp	Ser	Trp	Ala	Asn	Leu	Val	Ala	Arg	Cys	Leu	Tyr	Cys	Val
		115				120						125			
Gly	Ile	Arg	Asn	Thr	Asp	Val	Phe	Gln	Asn	Ser	Ser	Gly	Tyr	Gly	Met
	130					135					140				
Phe	Thr	Gly	Gly	Leu	Gly	Phe	Gln	Tyr	Gly	Ala	Glu	Arg	Leu	Gly	Ala
145				150						155					160
Leu	Thr	Val	Pro	Ala	Ala	Ala	Gly	Asn	Ser	Lys	Arg	Gln	Ile	Lys	Phe
			165					170						175	
Ile	Thr	Asp	Phe	Lys	Thr	Thr	Ala	Leu	His	Ala	Ile	Pro	Ser	Tyr	Ala
		180					185					190			
Ile	Arg	Leu	Ala	Glu	Val	Phe	Gln	Glu	Glu	Gly	Ile	Asp	Pro	Arg	Ser
	195					200					205				
Thr	Thr	Leu	Lys	Thr	Leu	Val	Ile	Gly	Ala	Glu	Pro	His	Thr	Asp	Glu
	210				215						220				
Gln	Arg	Lys	Lys	Ile	Glu	Arg	Met	Leu	Gly	Val	Lys	Ala	Tyr	Asn	Ser
225				230						235					240
Phe	Gly	Met	Thr	Glu	Met	Asn	Gly	Pro	Gly	Val	Ala	Phe	Glu	Cys	Thr
			245						250					255	
Glu	Gln	Asn	Gly	Met	His	Phe	Trp	Glu	Asp	Cys	Tyr	Tyr	Val	Glu	Ile

260 265 270  
 Ile Asn Pro Glu Thr Gly Glu Pro Val Pro Glu Arg Glu Ile Gly Glu  
 275 280 285  
 Leu Val Leu Thr Thr Leu Asp Arg Glu Met Met Pro Leu Ile Arg Tyr  
 290 295 300  
 Arg Thr Arg Asp Leu Thr Arg Ile Leu Pro Gly Asn Cys Pro Cys Gly  
 305 310 315 320  
 Arg Thr His Ile Arg Ile Asp Arg Ile Lys Gly Gly Ser Asp Asp Met  
 325 330 335  
 Phe Ile Ile Lys Gly Val Asn Ile Phe Pro Met Gln Val Glu Lys Ile  
 340 345 350  
 Leu Val Gln Phe Pro Glu Leu Gly Ser Asn Tyr Leu Ile Thr Leu Glu  
 355 360 365  
 Thr Val Asn Asn Gln Asp Glu Met Ile Val Glu Val Glu Leu Ser Asp  
 370 375 380  
 Leu Ser Thr Asp Asn Tyr Ile Glu Leu Glu Lys Ile Arg Lys Asp Ile  
 385 390 395 400  
 Thr Arg Gln Leu Lys Asp Glu Ile Leu Val Thr Pro Lys Leu Lys Leu  
 405 410 415  
 Val Lys Lys Gly Ser Leu Pro Gln Ser Glu Gly Lys Ala Val Arg Val  
 420 425 430  
 Lys Asp Leu Arg Asn Asn Lys  
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<210> 5319  
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 <212> PRT  
 <213> B.fragilis

<400> 5319  
 Lys Thr Met Ala Ile Ala Tyr Asp Gly Ile Asn Tyr Phe Pro Val Gly  
 1 5 10 15  
 Val Asn Phe Met Glu Glu Asn Ala Met Glu Val Ile Glu Ala Lys Tyr  
 20 25 30  
 Gly Ile Lys Gly Ser Ala Ile Val Leu Lys Leu Leu Cys Lys Ile Tyr  
 35 40 45  
 Lys Glu Gly Tyr Phe Ile Arg Trp Asp Glu Glu Gln Cys Leu Ile Phe  
 50 55 60  
 Ala Asn Lys Ala Gly Arg Glu Val Gln Ala Ala Glu Val Gln Gly Ile  
 65 70 75 80  
 Ile Glu Ile Leu Phe Ile Lys Gly Ile Leu Asp Arg Asn Ser Tyr Leu  
 85 90 95  
 Ala Asn Gly Ile Leu Thr Ser Ala Asn Ile Gln Lys Ile Trp Met Glu  
 100 105 110  
 Ala Thr Lys Arg Arg Lys Arg Asp Leu Lys Ala Leu Pro Tyr Leu Leu  
 115 120 125  
 Val Asn Asp Leu Thr Gln Gln Glu Thr Glu Ala Pro Glu Gly Glu Asn  
 130 135 140  
 Val Thr Ile Ser Pro Gly Asn Val Val His Asp Val Ala Val Asn Ala  
 145 150 155 160  
 Lys Asn Ala Cys Asn Ser Gly Gln Ser Lys Val Lys Glu Lys Lys Ala  
 165 170 175  
 Glu Glu Asn Lys Glu Leu Pro Pro Ser Ala Pro Pro Lys Gly Lys Glu  
 180 185 190  
 Lys Glu Trp Glu Glu Val Ser Ala Pro Leu Pro Ile Pro Gly Tyr Ala  
 195 200 205  
 Phe Asn Thr Met Thr His Asn Tyr Pro Gly Leu Thr Asp Thr Leu Lys  
 210 215 220  
 Arg Leu Gly Ile Thr Glu Val Gly Glu Val Asn Ala Ile Leu Arg Leu

225                      230                      235                      240  
 Ser Asp Tyr Gly Arg Lys Gly Thr Arg Val Trp Gln Leu Ile Ala Asn  
                                  245                      250                      255  
 Thr Cys Trp Ser Asp Ile Gly Ala Lys Gly Arg Tyr Leu Ile Ala Ala  
                                  260                      265                      270  
 Leu Asn Lys Lys Ala Lys Arg Lys  
                                  275

<210> 5320  
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 <212> PRT  
 <213> B.fragilis

<400> 5320  
 Gly Arg Asn Phe Leu Ile Glu Ala Ile Asn Gln Asp Tyr Tyr His Val  
 1                      5                      10                      15  
 His Gly Ala Leu Ala His Asn Phe Asp Thr Thr Leu Pro Glu Ile Gln  
                                  20                      25                      30  
 Ala Lys Gln Val Lys Glu Thr Leu Lys Asp Pro Tyr Ile Phe Asp Met  
                                  35                      40                      45  
 Leu Thr Phe Thr Asp Glu Tyr Asp Glu Arg Asp Val Glu Leu Gly Leu  
                                  50                      55                      60  
 Val Lys His Ile Glu Lys Phe Leu Val Glu Met Gly Ala Gly Phe Ala  
 65                      70                      75                      80  
 Phe Met Gly Arg Gln Tyr Tyr Ile Glu Val Ser Gly Asn Asp Phe Tyr  
                                  85                      90                      95  
 Ile Asp Ile Leu Met Cys Asn Ala Phe Met His Arg Tyr Leu Val Val  
                                  100                      105                      110  
 Glu Leu Lys Arg Gly Glu Phe Gln Pro Glu Tyr Ile Gly Lys Leu Asn  
                                  115                      120                      125  
 Phe Tyr Cys Ser Val Val Asp Asp Ile Leu Cys Arg Ala Gly Asp Asn  
                                  130                      135                      140  
 Gln Thr Ile Gly Leu Leu Leu Cys Gln Asn Lys Asn Arg Ile Met Ala  
 145                      150                      155                      160  
 Glu Tyr Ala Leu Arg Asp Val His Lys Pro Ile Gly Ile Ser Asp Tyr  
                                  165                      170                      175  
 Glu Leu Gly Lys Ala Leu Pro Lys Asp Ile Lys Ser Gly Leu Pro Ser  
                                  180                      185                      190  
 Ile Gly Glu Leu Glu Ser Lys Leu Ser Arg Glu Leu Glu Asp Asn Thr  
                                  195                      200                      205  
 Gln Ser Leu  
                                  210

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 <212> PRT  
 <213> B.fragilis

<400> 5321  
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 Ser Ser Arg Val Ala Ser Lys Trp Leu Ile Leu Ala Val Asp Val Leu  
                                  20                      25                      30  
 Leu Val Ile Phe Ser Met Phe Leu Ala Ser Leu Leu Gln Ile Gly Leu  
                                  35                      40                      45  
 Ser Ala Leu Val Phe Glu Phe Ser Leu Trp Val Trp Thr Thr Leu Phe  
                                  50                      55                      60  
 Cys Val Ile Phe Asn Val Cys Phe Phe His Leu Asn Arg Thr Tyr Val  
 65                      70                      75                      80

Gly	Val	Ile	Arg	Tyr	Ser	Ser	Phe	Ile	Asp	Ile	Ser	Arg	Ile	Phe	Ile
				85					90					95	
Ser	Leu	Thr	Leu	Gly	Tyr	Leu	Val	Thr	Cys	Val	Gly	Asn	Leu	Leu	Trp
			100					105					110		
Met	Gly	Trp	Ser	Gly	Arg	Glu	Val	Leu	Pro	Ile	Ser	Val	Ile	Leu	Thr
		115					120					125			
Ala	Tyr	Ile	Val	Asn	Phe	Ser	Leu	Met	Val	Cys	Leu	Arg	Ile	Leu	Val
	130					135					140				
Lys	Met	Ile	His	Glu	Leu	Met	Thr	Phe	Asp	Arg	Arg	His	Ser	Ile	Arg
145					150				155						160
Val	Phe	Val	Tyr	Gly	Ser	Lys	Gly	Ser	Gly	Ile	Asn	Ile	Ala	Lys	Ser
				165					170					175	
Leu	Arg	Val	Ser	Arg	Ser	Asn	His	Phe	Arg	Leu	Lys	Gly	Phe	Ile	Ser
			180					185					190		
Asp	Asp	Thr	Gly	Phe	Ile	Gly	Lys	Gln	Thr	Met	Gly	Cys	Arg	Val	Tyr
		195					200					205			
Ala	Asn	Asn	Glu	Ser	Leu	Phe	Asp	Ile	Leu	Glu	Glu	Glu	Arg	Ile	Glu
	210					215					220				
Ala	Ile	Ile	Val	Ser	Ser	Glu	Lys	Val	His	Arg	Leu	Glu	Thr	Ser	Gly
225					230				235						240
Met	Ile	Asp	Arg	Leu	Ile	Ala	Glu	Asp	Ile	Arg	Ile	Leu	Thr	Val	Pro
				245					250					255	
Pro	Phe	Asn	Asp	Leu	Gly	Lys	Glu	Gly	Met	Gln	Ile	Lys	Asp	Ile	Gln
		260						265					270		
Ile	Glu	Asp	Leu	Leu	Gln	Arg	Asp	Pro	Ile	His	Val	Asp	Ile	Arg	Lys
		275					280					285			
Ile	Ser	Ser	His	Ile	Glu	Gly	Lys	Arg	Ile	Met	Ile	Thr	Gly	Ala	Ala
	290					295					300				
Gly	Ser	Ile	Gly	Arg	Glu	Met	Val	Arg	Gln	Ile	Ala	Gly	Leu	Asn	Pro
305					310				315						320
Tyr	Lys	Leu	Ile	Leu	Val	Asp	Gln	Ala	Glu	Ser	Pro	Leu	His	Asn	Val
				325					330					335	
Gln	Leu	Glu	Leu	Leu	Asp	Asn	Trp	Arg	Asp	Ile	Asp	Ala	Lys	Met	Leu
		340						345				350			
Val	Ala	Asp	Val	Thr	Asn	Gln	Thr	Arg	Met	Glu	Ser	Ile	Phe	Lys	Asp
		355					360					365			
Tyr	Arg	Pro	Gln	Tyr	Val	Phe	His	Ala	Ala	Ala	Tyr	Lys	His	Val	Pro
	370					375					380				
Met	Met	Glu	Asp	Asn	Val	Ser	Glu	Ala	Ile	Gln	Val	Asn	Val	Leu	Gly
385					390					395					400
Thr	Arg	Ile	Met	Ala	Asp	Leu	Ala	Val	Lys	Tyr	Gly	Val	Glu	Lys	Phe
				405					410					415	
Val	Met	Val	Ser	Thr	Asp	Lys	Ala	Val	Asn	Pro	Thr	Asn	Val	Met	Gly
			420					425					430		
Cys	Ser	Lys	Arg	Leu	Ala	Glu	Ile	Tyr	Val	Gln	Ser	Leu	Ala	His	Gln
		435					440					445			
Leu	Ser	Lys	Tyr	Ala	Asn	Asp	Gly	Ala	Leu	Val	Lys	Phe	Ile	Thr	Thr
	450					455					460				
Arg	Phe	Gly	Asn	Val	Leu	Gly	Ser	Asn	Gly	Ser	Val	Ile	Pro	Arg	Phe
465					470					475					480
Lys	Gln	Gln	Ile	Glu	Lys	Gly	Gly	Pro	Val	Thr	Val	Thr	His	Pro	Gln
				485					490					495	
Val	Ile	Arg	Tyr	Phe	Met	Thr	Ile	Pro	Glu	Ala	Cys	Gln	Leu	Val	Leu
			500					505					510		
Glu	Ala	Gly	Ser	Met	Gly	Asn	Gly	Glu	Ile	Tyr	Ile	Phe	Asp	Met	
		515					520					525			
Gly	Asn	Pro	Val	Lys	Ile	Val	Asp	Leu	Ala	Arg	Arg	Met	Ile	Tyr	Leu
	530					535					540				
Ser	Gly	Gln	Lys	Asn	Ile	Lys	Ile	Glu	Phe	Thr	Gly	Leu	Arg	His	Gly

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545 550 555 560  
 Glu Lys Leu Tyr Glu Glu Leu Leu Asn Val Lys Glu Phe Thr Cys Pro  
 565 570 575  
 Thr Tyr His Glu Lys Ile Met Ile Ala Lys Val Arg Glu Tyr Asp Tyr  
 580 585 590  
 Glu Glu Val Lys Gln Glu Ile Gln Lys Leu Ile Asp Leu Ser Tyr Thr  
 595 600 605  
 Ser Asp Thr Met Gly Ile Val Ala Ser Met Lys Lys Ile Val Pro Glu  
 610 615 620  
 Phe Val Ser Lys Asn Ser Glu Phe Glu Ile Leu Asp Lys Ala Ser Phe  
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 <213> B.fragilis

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 Ala Phe Ser Pro Asn Lys Ser His Leu Ile Tyr Ser Thr Ile Ala Phe  
 35 40 45  
 Gly Asp Glu Pro Glu Ile Ile Met Gly Lys Gly Gln Ile Thr Asn  
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 Asp Asp Glu Ile Gln Met Tyr Pro Ser Ile Asn Asp Asn Gly Asp Val  
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 Val Gly Cys Phe Arg  
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 Cys Val Ala Cys Val Asn Glu Lys Asp Leu Tyr Glu Pro Ser Gly Glu  
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 Asp Pro Gly Glu Thr Glu Glu Leu Asp Leu Ser Phe Lys Phe Ala Leu  
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 Arg Ala Asp Lys Gln Ile His Ile Ser Val Thr Arg Ala Asp Gly Lys  
 65 70 75 80  
 Ala Ala Glu Gly Ile Gly Val Gly Val Tyr Leu Gln Gln Pro Tyr Glu  
 85 90 95  
 Glu Asp Gly Ile Ile Ser Gly Lys Pro Leu Tyr Met Gly Tyr Thr Asp  
 100 105 110  
 Gly Asn Gly Gln Ile Asp Ala Thr Ile Ser Val Pro Ala Asn Ser Asp  
 115 120 125  
 Lys Leu Tyr Val Ala Ser Leu Thr Ala Gly Tyr Pro Gly Val Gln Glu  
 130 135 140  
 Met Asp Val Gln Pro Ser Met Thr Cys Asn Leu Thr Ala Thr Ala Phe  
 145 150 155 160

Gln Ile Lys Thr Ala Thr Thr Arg Met Val Ala Thr Arg Ser Glu Thr  
 165 170 175  
 Gly Leu Asp Val Pro Val Gly Gln Lys Leu Ser Asn Leu Tyr Glu Leu  
 180 185 190  
 Tyr Ser Pro Tyr Thr Asp Ser Glu Ile Gly Lys Asp Gly Ile Pro Leu  
 195 200 205  
 Leu Asn Ala Ser Pro Leu Val Thr Lys Glu Glu Leu Ser Ala Lys Phe  
 210 215 220  
 Leu Asn Leu Met Asn Ser Trp Tyr Pro Glu Gln Lys Asn Val Gln Asp  
 225 230 235 240  
 Val Asp Leu Lys Lys Ser Ser Asp Leu Val Val Thr Asp Glu Leu Gly  
 245 250 255  
 Ala Glu Val Trp Ala Thr Tyr Val Gly Asp Gly Gly Phe Tyr Val Asn  
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 Asn Ala Thr Val Tyr Asn Val Leu Ala Tyr Tyr Ser Tyr Gln Glu Gly  
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 Glu Leu Gly Arg Arg Glu Asp Ile Gln Gly His Arg Met Thr Leu Leu  
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 Leu Pro Asn Thr His Gln Gln Lys Cys Pro Ser Gly Leu Lys Val Gln  
 305 310 315 320  
 Leu Leu Tyr Trp Asp Gly Lys Gln Tyr Ser Lys Val Phe Pro Lys Gly  
 325 330 335  
 Ala Arg Ile Gly Phe Ala Val Ala Arg Asp Gly Leu Asn Ile Ala Asn  
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 Val Asn Ala Asn Gly Gly Val Asn Ser Lys Ser Ser Tyr Lys Phe  
 355 360 365  
 Lys Asn Gln Thr Phe Pro Asn Gly Asp Val Asn Gly Phe Tyr Tyr Ser  
 370 375 380  
 Thr Pro Ser Leu Asn Ala Thr Lys Arg Thr Asn Ala Val Ile Arg Asn  
 385 390 395 400  
 Val Pro Asp Tyr Asn Cys Cys Ile Met Gly Phe Asp Ile Arg Pro Tyr  
 405 410 415  
 Asp Asp Pro Lys Ala Asp Tyr Asp Phe Asn Asp Val Met Ile Lys Leu  
 420 425 430  
 Thr Ala Ser Pro Val Ser Ala Ile Lys Pro Glu Glu Asp Ile Pro Val  
 435 440 445  
 Ile Asp Glu Phe Thr Pro Ser Glu Ala Val Tyr Gly Thr Leu Ala Phe  
 450 455 460  
 Glu Asp Gln Trp Pro Lys Met Gly Asp Tyr Asp Phe Asn Asp Phe Val  
 465 470 475 480  
 Met Asn Tyr Ser Tyr Glu Leu Glu Lys Gly Asp Asn Asn Met Ile Thr  
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 Ala Leu Lys Leu Thr Phe Thr Pro Ile Ala Lys Gly Ala Ala Ser Trp  
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 Thr His Ile Gly Val Gly Ile Glu Leu Pro Leu Ser Ala Asp Asn Ile  
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 Asp Lys Ala Lys Ser Glu Gly Ala Thr Leu Glu Glu Gly Asn Asp Arg  
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 Glu Gly Tyr Val Asn Thr Glu Gly Ala Val Val Gly Val Ser Ala Ile  
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 Thr Gln Lys Phe Asn Pro Phe Ile Phe Val Asn Ser Arg Gln Arg Glu  
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Lys	Ser	Val	Val	Val	Leu	Phe	Ser	Gly	Asn	Val	Phe	Ala	Asn	Leu	Ile
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Ser	Leu	Leu	Ser	Ile	Pro	Ile	Leu	Ser	Arg	Ile	Tyr	Ser	Asp	Ile	Ala
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Phe	Gly	Asp	Tyr	Ala	Ile	Val	Ile	Ser	Thr	Ala	Thr	Ile	Val	Asn	Gly
65					70					75				80	
Ile	Ser	Thr	Leu	Gly	Leu	Thr	Ser	Ala	Ile	Met	Ile	Pro	Val	Glu	Glu
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Asn	Lys	Ala	Lys	Ser	Val	Phe	Thr	Thr	Ala	Trp	Ile	Ser	His	Ile	Leu
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Val	Ser	Thr	Phe	Cys	Phe	Val	Leu	Ala	Leu	Ile	Leu	Leu	Pro	Val	Tyr
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Ser	Ile	Tyr	Ser	Ile	Thr	Gly	Ser	Tyr	Ser	Cys	Ser	Leu	Leu	Leu	Met
	130					135					140				
Tyr	Leu	Tyr	Val	Leu	Leu	Val	Gly	Thr	Phe	Ser	Leu	Leu	Ser	Val	Tyr
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Ala	Asn	Arg	Leu	Arg	Lys	Asn	Arg	Ile	Leu	Phe	Trp	Asn	Ala	Met	Ile
				165					170					175	
Asn	Ser	Leu	Ala	Leu	Leu	Cys	Leu	Ala	Ile	Pro	Phe	Gly	Leu	Trp	Gly
			180					185					190		
Trp	Gly	Gly	Thr	Gly	Phe	Leu	Met	Ala	Ser	Thr	Gly	Gly	Tyr	Leu	Val
		195					200					205			
Ala	Asn	Ile	Gln	Met	Leu	Tyr	His	Met	Asn	Pro	Phe	Lys	Lys	Ile	Ala
	210					215					220				
Tyr	Arg	Asp	Cys	Val	Ser	Val	Tyr	Lys	Asp	Phe	Lys	Asp	Phe	Ile	Ile
225					230					235					240
Tyr	Gln	Phe	Pro	Ser	Asn	Leu	Ile	Ser	Thr	Phe	Thr	Ile	Gln	Leu	Pro
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Asn	Gln	Leu	Phe	Ser	Ala	Tyr	Phe	Gly	Asn	Ala	Ser	Leu	Gly	Gly	Tyr
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Ala	Met	Cys	Glu	Arg	Ile	Leu	Gly	Val	Pro	Met	Arg	Leu	Ile	Gly	Ala
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Pro	Ile	Thr	Thr	Ile	Tyr	Phe	Arg	His	Ser	Ser	Glu	Cys	Ile	Arg	Glu
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Cys	Lys	Asp	Ile	Ser	Gly	Phe	Thr	Tyr	Ile	Leu	Ile	Thr	Arg	Ile	Leu
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2243	2244	2245	2246	2247
2248	2249	2250	2251	2252
2253	2254	2255	2256	2257
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 Leu Phe Thr Phe Ile Leu Gly Asp Ser Trp Leu Leu Val Gly Lys Ile  
 340 345 350  
 Val Ser Ile Leu Ile Phe Pro Tyr Val Leu Leu Phe Cys Ser Asn Cys  
 355 360 365  
 Val Ser Tyr Cys Leu Val Val Ile Gly Lys Gln Lys Ile Asn Leu Tyr  
 370 375 380  
 Leu Ser Leu Leu Tyr Leu Met Leu Ile Val Ala Ser Val Val Ser Gly  
 385 390 395 400  
 Phe Tyr Val Phe Ser Asp Phe Val Ser Val Val Ile Cys Phe Ala Val  
 405 410 415  
 Ala Leu Ile Val Phe Asn Leu Leu Asn Leu Leu Val Ile Phe Tyr Tyr  
 420 425 430  
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 Val Gln Tyr Val Lys Asp Ala Gln Lys Met Gly Lys Thr Gln Lys Gln  
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 Ile Thr Thr Glu Leu Met Arg Arg Gly Val Thr Lys Glu Gln Val Glu  
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 Arg Ile Gln Glu Lys Tyr Glu Asn Gly Ser Gly Ser Thr Gly Thr Gln  
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 Asn Asn Gln Asn Ser Thr Arg Ser Arg Thr Arg Thr Gln Gln Asn Asp  
 85 90 95  
 Glu Ser Asp Tyr Ser Asn Arg Ser Gln Lys Asn Leu Lys Asp Gln Lys  
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 Asn Gln Lys Asn Gln Lys Asn Gln Lys Asn Ile Lys Gly Leu Arg Gln  
 115 120 125  
 Ser Asn Asn Gln Lys Asn Lys Arg Gly Met Gly Asp Glu Asn Leu Glu  
 130 135 140  
 Met Thr Asp Glu Asp Met Met Asn Glu Glu Asp Trp Ser Asp Glu Tyr  
 145 150 155 160  
 Thr Val Lys Pro Glu Glu Asp Pro Thr Gln Gln Ile Phe Gly His Asn  
 165 170 175  
 Ile Phe Thr Asn Glu Asn Leu Thr Phe Glu Pro Asn Leu Asn Ile Ala  
 180 185 190  
 Thr Pro Val Ser Tyr Arg Leu Gly Pro Gly Asp Glu Val Ile Ile Asp  
 195 200 205  
 Val Trp Gly Ala Ser Gln Thr Thr Ile Arg Gln Thr Ile Ser Pro Glu  
 210 215 220  
 Gly Ser Ile Leu Val Asp Asn Leu Gly Pro Ile Tyr Leu Ser Gly Met  
 225 230 235 240  
 Thr Val Arg Glu Ala Asn Asn Ala Val Arg Arg Glu Phe Ala Lys Ile  
 245 250 255  
 Tyr Ala Gly Ile Ser Gly Pro Asn Pro Asn Thr Ser Val Asp Leu Thr  
 260 265 270  
 Leu Gly Asn Ile Arg Thr Ile Gln Ile Ser Ile Met Gly Glu Val Ala

5325 856 PRT B.fragilis 5325

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305	310	315
Lys Val Val Arg Asn Gly	Lys Lys Ile Ala Asp	Leu Asp Val Tyr Asp
325	330	335
Phe Ile Met Lys Gly Lys	Leu Asn Asp Asp Val Arg	Leu Gln Asp Gly
340	345	350
Asp Val Val Ile Val Asp	Pro Tyr Glu Ser Leu Val	Gln Ile Thr Gly
355	360	365
Lys Val Lys Arg Pro Met	Phe Tyr Glu Met Lys Pro	Ser Glu Thr Met
370	375	380
Ala Thr Ile Leu Lys Tyr	Ser Gly Gly Phe Thr Gly	Asp Ala Tyr Lys
385	390	395
Lys Ala Ile Arg Leu Ile	Arg Lys Thr Gly Arg Glu	His Gln Val Tyr
405	410	415
Asn Val Asp Glu Met Asp	Tyr Ser Val Phe Lys Leu	Asp Asp Gly Asp
420	425	430
Val Leu Ala Val Asp Ser	Val Leu Glu Arg Phe Glu	Asn Arg Val Glu
435	440	445
Val Arg Gly Ala Val Tyr	Arg Ala Gly Met Tyr Gln	Ile Asp Gly Thr
450	455	460
Val Asn Thr Val Lys Gln	Leu Ile Lys Lys Ala Glu	Gly Val Arg Gly
465	470	475
Asp Ala Phe Leu Asn Arg	Ala Ile Ile Asp Arg Glu	Asn Asp Asp Leu
485	490	495
Thr His Glu Met Ile Gln	Ile Asp Leu Lys Gly Leu	Leu Asn Gly Thr
500	505	510
Val Ala Asp Ile Pro Leu	Gln Lys Asn Asp Ile Leu	Tyr Ile Pro Ser
515	520	525
Ile Glu Asp Leu Lys Glu	Glu Ala Thr Leu Thr Ile	His Gly Glu Val
530	535	540
Ala Asn Pro Gly Thr Tyr	Leu Tyr Ser Ser Asn Met	Ser Val Glu Asp
545	550	555
Leu Val Leu Gln Ala Gly	Gly Leu Leu Glu Ala Ala	Ser Thr Ala Arg
565	570	575
Val Asp Val Ser Arg Arg	Ile Lys Asn Ser Lys Ser	Thr Glu Leu Ser
580	585	590
Asn Val Val Gly Lys Thr	Phe Ser Phe Glu Leu Lys	Asp Gly Phe Leu
595	600	605
Val Gly Gly Asp Gln Asp	Phe His Leu Glu Pro Phe	Asp Glu Val Tyr
610	615	620
Ile Arg Arg Ser Pro Ala	Tyr His Gln Gln Gln Asn	Val Thr Val Gly
625	630	635
Gly Glu Val Leu Phe Gly	Gly Arg Tyr Ala Leu Ser	Lys Lys Asn Glu
645	650	655
Arg Leu Ser Asp Leu Ile	Ser Lys Ala Gly Gly Ile	Thr Gln Asp Ala
660	665	670
Tyr Val Lys Gly Ala Arg	Leu Ile Arg Lys Met Thr	Glu Glu Glu Leu
675	680	685
Arg Arg Lys Glu Asp Ala	Leu Arg Met Ala Asn Lys	Gly Gly Ala Asp
690	695	700
Ser Ile Ser Val Lys Thr	Leu Asp Val Ser Asp Thr	Tyr Ser Val Gly
705	710	715
Ile Glu Leu Glu Lys Ala	Leu Ala Asn Pro Gly Ser	Asp Phe Asp Met
725	730	735
Val Leu Arg Glu Gly Asp	Ile Leu Phe Val Pro Glu	Tyr Val Ser Thr
740	745	750

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 325 330 335  
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 355 360 365  
 370 375 380  
 385 390 395  
 405 410 415  
 420 425 430  
 435 440 445  
 450 455 460  
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			20					25					30		
Pro	Ile	Ala	Val	Ala	Tyr	Pro	Lys	Asp	Ser	Ser	Asp	Val	Gln	Lys	Ile
		35					40					45			
Ser	Asn	Phe	Ala	Lys	Lys	Asn	Gln	Ile	Asn	Leu	Ile	Pro	Arg	Ala	Gly
	50					55					60				
Gly	Thr	Ser	Leu	Ala	Gly	Gln	Val	Val	Gly	Lys	Gly	Leu	Val	Val	Asp
65					70					75					80
Ile	Ser	Lys	Tyr	Met	Asn	His	Ile	Leu	Glu	Ile	Asn	Gln	Glu	Glu	Arg
				85					90					95	
Trp	Val	Arg	Val	Gln	Pro	Gly	Val	Val	Leu	Asp	Glu	Leu	Asn	Leu	Tyr
			100					105						110	
Cys	Lys	Pro	Tyr	Gly	Leu	Phe	Phe	Gly	Pro	Glu	Thr	Ser	Thr	Ser	Asn
		115					120					125			
Arg	Cys	Cys	Leu	Gly	Gly	Met	Val	Gly	Asn	Asn	Ser	Cys	Gly	Ser	His
	130					135					140				
Ser	Leu	Val	Tyr	Gly	Ser	Thr	Arg	Asp	His	Leu	Leu	Glu	Ala	Asn	Val
145					150					155					160
Val	Leu	Ser	Asp	Gly	Ser	Glu	Val	Val	Leu	Lys	Gly	Met	Thr	Ser	Lys
				165					170					175	
Glu	Ile	Asn	Glu	Lys	Cys	Lys	Leu	Asp	Ser	Leu	Glu	Gly	Arg	Ile	Tyr
			180					185						190	
Ser	Gln	Ile	Ile	Thr	Leu	Leu	Ser	Asn	Phe	Glu	Asn	Gln	Lys	Glu	Ile
		195					200					205			
Val	Asp	Asn	Tyr	Pro	Asp	Val	Ser	Leu	Arg	Arg	Arg	Asn	Ser	Gly	Tyr
	210					215					220				
Ala	Ile	Asp	Glu	Leu	Leu	Arg	Ser	Asn	Tyr	Phe	Asp	Lys	Asn	Cys	Ser
225					230					235					240
Glu	Ser	Phe	Asn	Leu	Cys	Lys	Leu	Leu	Ala	Gly	Ser	Glu	Gly	Thr	Leu
				245					250					255	
Ala	Leu	Ile	Thr	Glu	Leu	Lys	Leu	Lys	Leu	Val	Pro	Leu	Pro	Pro	Thr
			260					265					270		
Glu	Lys	Ala	Val	Ile	Cys	Val	His	Cys	Ser	Thr	Leu	Glu	Glu	Ser	Phe
		275					280					285			
Ala	Ala	Asn	Leu	Val	Ala	Leu	Arg	His	Ala	Pro	Val	Ala	Ile	Glu	Leu
		290				295					300				

Met Asp Ser Thr Ile Leu Glu Leu Ser Lys Gln Asn Ile Ser Gln Asn  
 305 310 315 320  
 Lys Asn Arg Phe Phe Ile Gln Gly Asp Pro Ala Ala Ile Leu Ile Ile  
 325 330 335  
 Glu Leu Ala Glu Gln Thr Arg Gly Glu Val Asp Lys Lys Ala Asn Glu  
 340 345 350  
 Ile Ile Asp Asp Leu Lys Ile His His Tyr Gly Thr His Tyr Pro Leu  
 355 360 365  
 Val Tyr Gly Lys Asp Ile Ser Arg Val Trp Ala Leu Arg Lys Ser Gly  
 370 375 380  
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 385 390 395 400  
 Ile Glu Asp Thr Ala Ile Ala Pro Glu Arg Leu Ala Ala Phe Ile Ala  
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 Asp Leu Lys Val Met Leu Ser Lys Tyr Gly Leu Asp Cys Ile Tyr His  
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 Gly His Ile Ser Thr Gly Glu Leu His Leu Arg Pro Val Leu Asn Leu  
 435 440 445  
 Lys Lys Glu Lys Asp Lys Lys Leu Phe Arg Leu Val Ala Thr Glu Thr  
 450 455 460  
 Ala Glu Leu Val Arg Lys His Arg Gly Ser Leu Ser Gly Glu His Gly  
 465 470 475 480  
 Asp Gly Arg Leu Arg Gly Glu Phe Ile Pro Leu Leu Leu Gly Asp Lys  
 485 490 495  
 Ile Tyr Ser Phe Leu Arg Asp Ile Lys Glu Thr Trp Asp Leu Pro His  
 500 505 510  
 Ile Phe Asn Ile Gly Lys Ile Val Asp Thr Pro Phe Met Asp Ile Asn  
 515 520 525  
 Leu Arg Tyr Glu Gln His Asn Leu Gly Val Lys Thr Tyr Phe Asp Phe  
 530 535 540  
 Ser Lys Gln Lys Gly Trp Leu Cys Ala Ile Glu Gln Cys Asn Gly Ser  
 545 550 555 560  
 Gly Asp Cys Arg Lys Ser Asn Leu Phe Gly Gly Thr Met Cys Pro Thr  
 565 570 575  
 Tyr Arg Ala Thr Arg Glu Glu Lys Asn Thr Thr Arg Ala Arg Ala Asn  
 580 585 590  
 Thr Leu Arg Glu Leu Leu Ile His Pro Ala His Asp Arg Ile Phe Ser  
 595 600 605  
 Gln Pro Glu Ile Leu Glu Val Leu Asp Thr Cys Val Ser Cys Lys Ala  
 610 615 620  
 Cys Lys Ser Glu Cys Pro Ser Asn Val Asp Met Ala Arg Tyr Lys Ala  
 625 630 635 640  
 Glu Tyr Leu Gln His His Tyr Asp Glu Thr Phe Val Ser Leu Arg Ser  
 645 650 655  
 Arg Leu Ile Ala Asn Leu Thr Lys Val Gln Lys Leu Gly Met Val Ala  
 660 665 670  
 Pro Trp Leu Tyr Asn Ala Phe Val Thr Ala Gln Phe Thr Ser Ser Leu  
 675 680 685  
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 690 695 700  
 Tyr Lys Ile Thr Leu Lys Ser Trp Leu Tyr Asn Asn Pro Asp Met Asn  
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 Lys Cys Asn Arg Lys Val Tyr Leu Phe Ala Asp Glu Phe Thr Asn Tyr  
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 Met Asp Val Glu Ile Gly Ile Lys Phe Ile Lys Leu Leu Arg Thr Leu  
 740 745 750  
 Gly Tyr Glu Val Ile Ile Pro Lys His Leu Glu Ser Gly Arg Thr Glu  
 755 760 765  
 Ile Ser Lys Gly Leu Leu Lys Lys Ala Lys Lys Ile Ala Glu Lys Asn

770		775		780
Ile Leu Phe Leu Lys Asp	Ile Val Thr Glu Glu	Ile Pro Leu Val Gly		
785	790	795	800	
Ile Glu Pro Ser Cys	Ile Leu Ser Phe Arg Asp	Glu Tyr Pro Asp Leu		
805	810	815		
Val Asp Glu Glu Leu Gln Gly Tyr	Ala Arg Lys Leu Ser Val Asn Cys			
820	825	830		
Leu Leu Tyr Asp Glu Phe Ile	Val Arg Glu Met Arg Lys Gly Asn Ile			
835	840	845		
Lys Gln Lys Gln Phe Thr Gln	Ser Tyr Leu Tyr Ile Lys Leu His Gly			
850	855	860		
His Cys His Gln Lys Ser Leu	Ala Ser Ile Glu Pro Ser Lys Glu Met			
865	870	875	880	
Leu Ser Leu Pro Lys Asn Tyr	Gln Val Asp Ile Ile Pro Ser Gly Cys			
885	890	895		
Cys Gly Met Ala Gly Ala Phe	Gly Tyr Glu Lys Glu His Tyr Asp Leu			
900	905	910		
Ser Met Gln Ile Gly Glu Gln	Val Leu Phe Pro Ala Ile Arg Gln Ala			
915	920	925		
Lys Glu Asp Val Cys Ile Ser	Ala Pro Gly Thr Ser Cys Arg Gln Gln			
930	935	940		
Ile Lys Asp Gly Thr Gly Arg	Arg Ala Tyr His Pro Ile Glu Val Leu			
945	950	955	960	
Tyr Asp Ala Leu Ile				
965				

<210> 5327  
 <211> 1084  
 <212> PRT  
 <213> B.fragilis

<400> 5327

Ala Thr Leu His His Glu Arg Ala Asp Arg Gln Val Ala Gly Ser Gln	
1	5 10 15
Gln Val Leu Ser Ser Asn Met Ser Phe Thr Thr Ser Ile Asn Ile Glu	
20	25 30
Arg Asp Phe Gly Lys Ile Pro His Tyr Ile Val Thr Ala Asn Ala Arg	
35	40 45
Gln Thr Ile Gly Lys Ile Ile Asn His Phe Ala Ser Gly Ile His Ser	
50	55 60
Phe Cys Leu Ile Gly Ser Tyr Gly Thr Gly Lys Ser Ser Phe Ile Leu	
65	70 75 80
Ala Leu Glu Asn Cys Leu Cys Gly Lys Thr Val Gly Lys Asn Val Leu	
85	90 95
Leu Ser Gln Arg Gly Gln Phe Asn Ser Phe Glu Gln Phe Ser Phe Ile	
100	105 110
Asn Ile Val Gly Asp Tyr Ala Ser Leu Ala Asn Leu Leu Ala Ser His	
115	120 125
Leu Asn Ala Glu Ser Lys Asn Val Ile Ser Val Leu Asp Asn His Tyr	
130	135 140
Asn Arg Leu Gln Lys Thr Asn Gln Phe Leu Val Ile Val Ile Asp Glu	
145	150 155 160
Phe Gly Lys Val Leu Glu His Ala Ala Lys Asn Asn Pro Glu Lys Glu	
165	170 175
Met Tyr Phe Leu Gln Lys Phe Cys Glu Tyr Val Asn Asp Thr Ser Lys	
180	185 190
Asn Ile Leu Phe Leu Thr Thr Leu His Gln Gly Phe Gly Ala Tyr Ala	
195	200 205
Lys Gly Leu Lys Ala Glu Gln Lys Gln Glu Trp Thr Lys Val Lys Gly	

210	215	220
Arg Ile Gln Asp Ile Val Phe Ala Glu Pro Ile Glu Gln Leu Leu Asn		
225	230	235
Leu Thr Ala Thr His Ile Ser Ser Ala Asp Lys Lys Pro Thr Leu Asn		240
	245	250
Thr Asp Lys Ile Tyr Asn Leu Ala Val Ala Ser Lys Phe Ala Ala Ser		255
	260	265
Thr Leu Asp Ala Asn Val Ala Arg Ala Leu Tyr Pro Met Asp Ile Val		270
	275	280
Ser Ala Tyr Val Phe Thr Gln Ala Asn Gln Arg Tyr Gly Gln Asn Glu		285
	290	295
Arg Thr Leu Phe Thr Phe Leu Glu Thr Arg Gly Glu Gly Thr Val Asn		300
	305	310
Asp Phe Glu Ala Ser Ile Asn Arg Leu Tyr Ser Leu Ala Asp Val His		315
	325	330
Asp Tyr Ile Val Tyr Asn Phe Tyr Ser Tyr Leu Gln Glu Ala His Glu		335
	340	345
Asp Ser Ala Asn Trp Ser Ala Ile Lys Ile Ala Ile Glu Arg Thr Glu		350
	355	360
Gly Leu Asn Ala Asp Ala Thr Thr Ile Thr Asp Ala Ile Lys Ile Val		365
	370	375
Lys Ala Val Gly Leu Leu Asn Ile Phe Ala Ser Ser Ala Ala Ser Ile		380
	385	390
Asp Lys Gln Phe Leu Ile Val Tyr Ala Ser Tyr Ala Met Asp Val Cys		395
	405	410
Gln Val Gly Ser Val Ile Asp Leu Leu Glu Lys Asn Gln Ile Leu Arg		415
	420	425
Phe Ala Lys Tyr Lys Ser Lys Tyr Ile Leu Phe Glu Gly Thr Asp Val		430
	435	440
Asp Leu Glu Ala Gly Leu Tyr Glu Ala Ala Arg Glu Cys Lys Arg Ser		445
	450	455
Asp Val Ile Ala Glu Lys Val Cys Glu Tyr Phe Asp Asp Lys Ile Ala		460
	465	470
Leu Ala Asn Ala His Tyr Phe Arg Thr Gly Thr Pro Arg Tyr Phe Gln		475
	485	490
Tyr Cys Leu Thr Ser Ser Pro Ile Glu Tyr Ile Val Ser Gly Glu Thr		495
	500	505
Asp Gly Ile Ile Asn Val Ile Leu Thr Arg Gln Glu Asp Leu Val Ala		510
	515	520
Val Lys Ala Ala Cys Thr Asp Ile Asn Gly Lys Ala Ile Leu Tyr Cys		525
	530	535
Ile Phe Glu Asn Thr Thr Glu Ile Ala Asp His Leu Phe Glu Ile Asp		540
	545	550
Lys Leu His Trp Val Arg Asp Tyr Tyr Val Ala Asp Glu Asn Asp Lys		555
	565	570
Val Ala Asn Arg Glu Ile Ala Asn Leu Leu Val His Glu Gln Ser Met		575
	580	585
Leu Asn Lys Thr Ile Met Glu Ser Leu Phe Ser Asp Asn Val Thr Trp		590
	595	600
Ile Phe Asn Gly Glu Ile Leu Ala Ser Ile Thr Ser Arg Lys Met Leu		605
	610	615
Ala Gln Gln Leu Ser Thr Ile Cys Asp Ser Val Tyr Tyr Ala Thr Pro		620
	625	630
Ile Tyr Arg Phe Glu Leu Ile Asn Lys His Arg Pro Thr Gly Asn Met		635
	645	650
Ser Leu Ala Arg Gln Ser Tyr Leu Gln Ala Leu Leu Asp His Ser Ser		655
	660	665
Glu Pro Tyr Leu Gly Phe Glu Arg Asp Lys Tyr Pro Pro Glu Lys Ser		670
	675	680
		685

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Leu Tyr Leu Thr Leu Leu Lys Asn Thr Gly Ile His Thr Thr Ala Gly  
 690 695 700  
 Leu Gly Ser Pro Thr Glu Pro Ser Phe Gln Pro Leu Trp Asp Ala Cys  
 705 710 715 720  
 Glu Asn Phe Leu Arg Ser Thr Ile Gly Lys Pro His Lys Leu Gly Glu  
 725 730 735  
 Leu Phe Thr Leu Leu Glu Ala Ala Pro Phe Arg Leu Lys Gln Gly Leu  
 740 745 750  
 Leu Tyr Cys Trp Ile Pro Thr Tyr Leu Ile Ile Lys Arg Asp Asp Phe  
 755 760 765  
 Ala Leu Tyr Asn Ser Asp Gly Thr Tyr Val Pro Tyr Ile Asn Lys Glu  
 770 775 780  
 Val Leu Asp Leu Ile Leu Arg Ser Pro Asn Gly Phe Leu Ile Lys Ala  
 785 790 795 800  
 Phe Ala Val Asp Gly Val Arg Arg Thr Phe Phe Asp Lys Tyr Arg Glu  
 805 810 815  
 Ala Ile Asn Met Gly Ser Ser Glu Leu Ser Thr Gln Ser Phe Ile Glu  
 820 825 830  
 Thr Ile Arg Pro Phe Leu Thr Phe Tyr Lys Lys Leu Asn Ser Tyr Ala  
 835 840 845  
 Arg Arg Thr Lys Asp Ile Ser Pro Asn Ala Arg Lys Phe Arg Asp Val  
 850 855 860  
 Ile Ala Lys Ala Thr Asp Pro Glu Lys Thr Phe Phe Glu Val Leu Pro  
 865 870 875 880  
 Asp Glu Leu Gly Phe Lys Glu Ile Thr Leu Ser Gln Asn Pro Glu Ala  
 885 890 895  
 Ile Glu Ser Phe Val Ala Val Ile Gln Glu Ala Ile Arg Glu Leu Arg  
 900 905 910  
 Asn Cys Tyr Ser Glu Leu Val Gly Asn Ile Glu Gln Tyr Leu Leu Lys  
 915 920 925  
 Thr Leu Arg Leu Glu Glu Val Gly Phe Ser Asp Tyr His His Leu Ile  
 930 935 940  
 Ala Glu Arg Tyr Lys Ser Val Lys Thr Glu Leu Met Pro Val Asn Met  
 945 950 955 960  
 Arg Asn Phe Gln Ala Arg Leu Val Gly Asn Tyr Asp Asp Lys Thr Ala  
 965 970 975  
 Trp Ile Glu Ala Val Ser Tyr Val Ala Leu Asn Lys Pro Leu Thr Glu  
 980 985 990  
 Ile Arg Asp Thr Asp Lys Ser Phe Leu Leu Ala Thr Leu Lys Asp Met  
 995 1000 1005  
 Leu Phe Gln Leu Asp Asp Tyr Val Glu Met His Lys Thr Ala Ser Glu  
 1010 1015 1020  
 Asp Val Ile Arg Leu His Ile Thr Gln Asn Lys Ser Lys Ala Val Thr  
 1025 1030 1035 1040  
 Thr Gln Val Ile Leu Ser Glu Ala Met Arg Gln Glu Val Asn Ser Leu  
 1045 1050 1055  
 Glu Asn Lys Leu Glu Ser Ile Leu Ser Gly Asp Asn Ser Leu Asp Val  
 1060 1065 1070  
 Ala Ala Leu Ile Ala Ile Leu Lys Lys Lys Leu Lys  
 1075 1080

&lt;210&gt; 5328

&lt;211&gt; 88

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5328

Phe Tyr Ser His Cys Val Asp Gln His Cys Lys Gly Glu His Leu Gln  
 1 5 10 15

Glu Asp Asp Lys Arg Lys Gln Gly Ile Arg Ile Lys Leu Tyr Arg Ile  
                   20                  25                  30  
 Ser Tyr Asn His His Ile Ile Ser Ala Ile Thr Tyr Phe Phe Leu Tyr  
                   35                  40                  45  
 Ile Tyr Phe Thr Tyr Ser Ala Ile Val Arg Leu Phe Ile Leu Tyr Pro  
                   50                  55                  60  
 Phe Asn Glu Ile Ser Pro Val Leu Tyr Leu Ala Trp His Lys Thr Gly  
 65                  70                  75                  80  
 Asp Glu Thr Lys Ile Tyr Thr His  
                   85

&lt;210&gt; 5329

&lt;211&gt; 143

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5329

Lys Asn Gly Gln Asn Leu Gln Ser Asp Gly Ser Met Ser Phe Trp Asn  
 1                  5                  10                  15  
 Glu Ala Asn Val Ile Leu Trp Ile Ser Arg Asn Ser Leu Lys Ile Ser  
                   20                  25                  30  
 Leu Ala Asp Ile Glu Ser Ser Pro Tyr Ile Ser Lys Gln Leu Leu Arg  
                   35                  40                  45  
 His Thr Leu Glu His Leu Gln Glu Leu Asp Phe Ile Glu Ser Thr Gly  
                   50                  55                  60  
 Arg Ala Ser Gly Leu Arg Tyr Ile Leu His Lys Ser Lys Ile Gln Thr  
 65                  70                  75                  80  
 Thr Gly Glu Lys Ile Lys Tyr Ser Gln Leu Lys Arg Gln Gly Lys Ala  
                   85                  90                  95  
 Lys Gln Arg Glu Ala Val Ile Arg Tyr Ile Asn Thr Val Gly Thr Ile  
                   100                  105                  110  
 Thr Asn Ala Glu Ala Arg Glu Ile Leu Asn Leu Thr Glu Thr Ser Gln  
                   115                  120                  125  
 Ser Tyr Val Pro Arg Cys Tyr Pro Asn Tyr Gly Val Lys Asp Ile  
                   130                  135                  140

&lt;210&gt; 5330

&lt;211&gt; 291

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5330

Met Phe Thr Asn Leu Ile Lys Arg Val Ile Met Lys Tyr Ala Phe Ser  
 1                  5                  10                  15  
 Gly His Glu Ser Phe Gln Cys Lys Gly Leu Trp Leu Lys Lys Gly Tyr  
                   20                  25                  30  
 Asp Tyr Ala Lys Ala Gly Leu Ser Phe Thr Asp Asp Tyr Ala Val Val  
                   35                  40                  45  
 Glu Leu Gly Val Gly Lys Asn Met Val Ala Ser Ile Arg Tyr Trp Leu  
                   50                  55                  60  
 Arg Ala Phe Gly Ile Thr Asn Asp Asn Gly Val Pro Thr Glu Ile Gly  
 65                  70                  75                  80  
 Lys Tyr Leu Leu Asp Asp Asn Gly Ala Asp Pro Tyr Ile Glu Asp Thr  
                   85                  90                  95  
 Thr Thr Leu Trp Leu Leu His Tyr Met Leu Val Thr Ser Arg Val Ala  
                   100                  105                  110  
 Thr Leu Tyr Asn Ile Val Phe Thr Glu Tyr Asn Lys Thr Arg Lys Glu  
                   115                  120                  125  
 Phe Thr Lys Ala Asp Leu Ala Asn Ala Val Arg Arg Met Phe Ala Asp



130 135 140  
 Lys Cys Phe Asp Ser Thr Pro Tyr Asn Glu Lys Thr Val Trp Arg Asp  
 145 150 155 160  
 Ile Asp Thr Met Leu Lys Asn Tyr Val Thr Pro Asp Ser Ile Lys Ala  
 165 170 175  
 Cys Asp Asp Phe Ser Ala Leu Leu Ile Asp Leu Lys Leu Ile Gly Lys  
 180 185 190  
 Thr Gly His Glu Asp Tyr Thr Phe Asn Cys Ser Ala Arg Ala Lys Met  
 195 200 205  
 Glu Pro Leu Val Phe Leu Phe Ala Val Leu Asp Ile Thr Gln Gly Lys  
 210 215 220  
 Gln Gln Val Ile Glu Phe Glu Val Leu Leu Arg Leu Ala Asn Ile Phe  
 225 230 235 240  
 Gly Met Ser Val Asn Glu Leu Tyr Asp Val Phe Asp Gln Leu His Thr  
 245 250 255  
 Ile Asp Pro His Ile Thr Phe Cys Asn Thr Ala Gly Glu Gln Leu Phe  
 260 265 270  
 Thr Met Lys Glu Arg Ile Asp Lys Trp Gln Val Leu Asn Lys Tyr Tyr  
 275 280 285  
 Gln Ala Thr  
 290

<210> 5331  
 <211> 109  
 <212> PRT  
 <213> B.fragilis

<400> 5331  
 Lys Asn Ala Asn Thr Lys Thr Gln Pro Pro Ile Thr Glu Pro Ile Lys  
 1 5 10 15  
 Glu Thr Arg Gly Arg Lys Ala Gly Ala Gln Ile Pro Gly Ile Ile Ser  
 20 25 30  
 Asn Asn Glu Gly Val Ile Lys Ala Leu Ile Glu Ser Tyr Ile Leu Asp  
 35 40 45  
 Ala Lys Glu Gln Asn Ile Lys Thr Cys Lys Asp Ser Leu Ala Arg Tyr  
 50 55 60  
 Ile Glu Gly Lys Lys Leu Phe Gly Lys Ile Arg Asn Gly Val Phe Lys  
 65 70 75 80  
 Pro Leu Val Leu Ser Thr Ile Arg Thr Tyr Val Asn Glu Ile Trp Asn  
 85 90 95  
 Lys Met Glu Arg Lys Lys Lys Asn Gln Glu Gly Lys Arg  
 100 105

<210> 5332  
 <211> 64  
 <212> PRT  
 <213> B.fragilis

<400> 5332  
 Thr Phe His Lys Val Lys Pro Arg Leu Asn Ile Glu Ser Arg Ile Phe  
 1 5 10 15  
 Gln Thr Leu His Tyr Tyr Ile Leu Thr Leu Met Phe Arg Ser Lys Gly  
 20 25 30  
 Lys Ile Arg Ile Leu Ser Phe Phe Ser Ser Gly Tyr Glu Asn Pro Gln  
 35 40 45  
 Lys Gly Lys Glu Asn Ile Leu Pro Leu Ile Ile Leu Phe Ser Ile Lys  
 50 55 60

<210> 5333

<211> 64  
 <212> PRT  
 <213> B.fragilis

<400> 5333

Arg	Gly	Asn	Lys	Arg	Glu	Asn	Glu	Thr	Phe	Ser	Leu	Leu	Asn	Cys	Leu
1			5						10					15	
Thr	Leu	Asn	Glu	Ile	Val	Leu	Lys	Lys	Val	Ser	Val	Ser	Ile	Asn	Asp
		20						25					30		
Arg	Leu	Ile	Glu	Arg	Lys	Asp	Arg	Gly	Tyr	Phe	His	Asn	Cys	Lys	Met
		35				40						45			
Phe	Asn	Lys	Lys	Asn	Val	Phe	Leu	His	Gly	Leu	Ile	Tyr	Leu	Ile	Val
	50					55					60				

<210> 5334  
 <211> 531  
 <212> PRT  
 <213> B.fragilis

<400> 5334

Asp	Met	Ser	Lys	Gln	Leu	Leu	Leu	Gly	Asp	Glu	Ala	Ile	Ala	Gln	Ala
1			5						10					15	
Ala	Leu	Asp	Ala	Gly	Leu	Ser	Gly	Val	Tyr	Ala	Tyr	Pro	Gly	Thr	Pro
		20						25					30		
Ser	Thr	Glu	Ile	Thr	Glu	Tyr	Ile	Gln	Met	Ala	Pro	Ile	Thr	Ser	Glu
		35					40					45			
Arg	Asn	Ile	His	Asn	Arg	Trp	Cys	Ala	Asn	Glu	Lys	Thr	Ala	Met	Glu
	50					55				60					
Ala	Ala	Leu	Gly	Met	Ser	Phe	Val	Gly	Lys	Arg	Ala	Leu	Val	Cys	Met
65				70					75					80	
Lys	His	Val	Gly	Met	Asn	Val	Ala	Ala	Asp	Cys	Phe	Ile	Asn	Ser	Ala
			85						90				95		
Ile	Thr	Gly	Val	Lys	Gly	Gly	Leu	Ile	Val	Val	Ala	Ala	Asp	Asp	Pro
		100					105						110		
Ser	Met	His	Ser	Ser	Gln	Asn	Glu	Gln	Asp	Ser	Arg	Phe	Tyr	Gly	Asp
	115					120						125			
Phe	Ser	Leu	Ile	Pro	Met	Tyr	Glu	Pro	Ser	Asn	Gln	Gln	Glu	Ala	Tyr
	130				135					140					
Asp	Met	Val	Tyr	Asn	Gly	Phe	Glu	Phe	Ser	Glu	Lys	Ile	Gly	Glu	Pro
145				150					155					160	
Ile	Leu	Met	Arg	Met	Val	Thr	Arg	Leu	Ala	His	Ser	Arg	Ser	Gly	Val
			165					170					175		
Glu	Asn	Lys	Ala	Gln	Lys	Pro	Gln	Asn	Glu	Ile	Ser	Phe	Ser	Glu	Asp
		180					185						190		
Pro	Arg	Gln	Phe	Ile	Leu	Leu	Pro	Gly	Asn	Ala	Arg	Lys	Arg	Tyr	Lys
	195					200						205			
Val	Leu	Leu	Thr	Arg	Gln	Glu	Glu	Phe	Ile	Lys	Ala	Ser	Glu	Glu	Ser
	210				215						220				
Pro	Tyr	Asn	Arg	Tyr	Ile	Asp	Gly	Pro	Asn	Lys	Lys	Thr	Gly	Ile	Val
225			230						235					240	
Ala	Cys	Gly	Ile	Gly	Tyr	Asn	Tyr	Leu	Met	Glu	Asn	Tyr	Pro	Glu	Gly
		245					250						255		
Cys	Glu	Tyr	Pro	Val	Leu	Lys	Val	Gly	Gln	Tyr	Pro	Leu	Pro	Lys	Lys
		260					265					270			
Gln	Leu	Met	Gln	Leu	Ile	Asp	Ala	Cys	Asp	Glu	Ile	Leu	Val	Leu	Glu
	275				280						285				
Asp	Gly	Gln	Pro	Phe	Val	Glu	Lys	Gln	Leu	Lys	Gly	Tyr	Leu	Gly	Ile
	290				295					300					
Gly	Leu	Lys	Val	Lys	Gly	Arg	Leu	Asp	Gly	Thr	Leu	Ser	Gln	Asp	Gly

305 310 315 320  
 Glu Leu Asn Pro Asp Thr Val Ala Arg Ala Leu Gly Lys Glu Asn Ser  
 325 330 335  
 Ser Glu Phe Asn Val Pro Asn Ile Val Glu Met Arg Pro Pro Ala Leu  
 340 345 350  
 Cys Glu Gly Cys Gly His Arg Asp Met Tyr Ile Thr Leu Thr Gln Val  
 355 360 365  
 Leu Lys Glu Glu Tyr Pro Thr His Lys Val Phe Ser Asp Ile Gly Cys  
 370 375 380  
 Tyr Thr Leu Gly Ala Asn Ala Pro Phe Asn Ala Ile Asn Ser Cys Val  
 385 390 395 400  
 Asp Met Gly Ala Ser Ile Thr Met Ala Lys Gly Ala Ser Asp Gly Gly  
 405 410 415  
 Leu His Pro Ala Val Ala Val Ile Gly Asp Ser Thr Phe Thr His Ser  
 420 425 430  
 Gly Met Thr Gly Leu Leu Asp Cys Val Asn Glu Asn Ala Asn Val Thr  
 435 440 445  
 Ile Val Ile Ser Asp Asn Glu Thr Thr Ala Met Thr Gly Gly Gln Asp  
 450 455 460  
 Ser Ala Gly Thr Gly Arg Leu Glu Ala Ile Cys Ala Gly Leu Gly Val  
 465 470 475 480  
 Asp Pro Ala His Ile Arg Val Val Val Pro Leu Lys Lys Asn Tyr Glu  
 485 490 495  
 Glu Met Lys Gln Ile Ile Arg Glu Glu Ile Asn Tyr Lys Gly Val Ser  
 500 505 510  
 Val Ile Ile Pro Arg Arg Glu Cys Ile Gln Thr Leu Ala Arg Lys Lys  
 515 520 525  
 Arg Ser Lys  
 530

&lt;210&gt; 5335

&lt;211&gt; 142

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5335

Ile Leu Ser Asn Arg Asn Thr Phe Asp Pro Thr Tyr Leu Trp Gly Asp  
 1 5 10 15  
 Asn Leu Ser Ile Asn Pro Leu Asn His Ile Arg Met Lys Gln Lys Lys  
 20 25 30  
 Arg Pro Ala Ser Gln Thr Glu Ala Met Lys Leu Arg Trp Lys Lys Arg  
 35 40 45  
 Ile Val Phe Glu Lys Gly Tyr Thr Glu Met Cys Ala Glu Trp Met Ala  
 50 55 60  
 Glu Arg Leu Glu Ala Leu Thr Asp His Leu Gln Tyr Gly His Ala Ala  
 65 70 75 80  
 Ile Ala Tyr Gln Lys Gln Asn Gly Asp Phe Arg Leu Val Lys Ala Thr  
 85 90 95  
 Leu Ile Tyr Tyr Glu Thr Glu Phe His Lys Lys Tyr Asp Pro Thr Gln  
 100 105 110  
 Ile Glu Gly Ala Val Val Tyr Trp Asn Val Asp Glu Gln Arg Trp Thr  
 115 120 125  
 Thr Phe Gln Met Glu Asn Phe Met Glu Trp Arg Pro Ile Val  
 130 135 140

&lt;210&gt; 5336

&lt;211&gt; 410

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5336

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Ile Leu Pro Lys Leu Leu Ile Tyr Met Lys Gln His Leu Leu Lys Glu
1      5      10      15
Ile Glu Leu Gly Thr Lys Ser Ala Leu Leu Lys Lys Lys Ile Ile Thr
20      25      30
His Tyr Ile Tyr Asn Gly Ser Ser Thr Ile Thr Asp Leu Ser Lys Glu
35      40      45
Leu Asp Leu Ser Val Pro Thr Val Thr Lys Phe Ile Ser Glu Met Cys
50      55      60
Glu Glu Gly Tyr Ile Asn Asp Tyr Gly Lys Leu Glu Thr Ser Gly Gly
65      70      75      80
Arg His Pro Asn Leu Tyr Gly Leu Asn Pro Glu Ser Gly Tyr Phe Ile
85      90      95
Gly Val Asp Ile Lys Arg Phe Ala Ile Asn Ile Gly Leu Ile Asn Phe
100     105     110
Lys Gly Asp Met Met Glu Leu Lys Met Asn Ile Pro Tyr Lys Phe Glu
115     120     125
Asn Ser Ile Glu Gly Leu Asn Glu Leu Cys Lys Leu Ile Ser Asn Phe
130     135     140
Ile Lys Lys Leu Thr Ile Ala Lys Asp Lys Ile Leu Asn Ile Asn Val
145     150     155     160
Asn Val Ser Gly Arg Val Asn Pro Glu Ser Gly Tyr Ser Phe Ser Gln
165     170     175
Phe Asn Phe Glu Arg Pro Leu Ser Glu Val Leu Ala Glu Lys Leu
180     185     190
Gly Tyr Lys Val Thr Ile Asp Asn Asp Thr Arg Ala Met Thr Tyr Gly
195     200     205
Glu Tyr Leu Lys Gly Cys Val Asn Gly Glu Lys Asp Ile Ile Phe Val
210     215     220
Asn Ile Ser Trp Gly Leu Gly Val Gly Ile Ile Ile Asp Gly Lys Ile
225     230     235     240
Tyr Thr Gly Lys Ser Gly Phe Ser Gly Glu Phe Gly His Thr Ser Thr
245     250     255
Phe Asp Asn Glu Ile Ile Cys His Cys Gly Lys Lys Gly Cys Leu Glu
260     265     270
Thr Glu Ala Ser Gly Ser Ala Leu His Arg Ile Leu Leu Glu Arg Ile
275     280     285
Gln Asn Gly Glu Asn Ser Ile Leu Ser Asn Arg Ile Gly Asp Ile Asn
290     295     300
Asn Pro Ile Thr Leu Asp Glu Ile Ile Ala Ser Val Asn Lys Glu Asp
305     310     315     320
Leu Leu Cys Ile Glu Ile Val Glu Glu Ile Gly Gln Lys Leu Gly Lys
325     330     335
Gln Ile Ala Gly Leu Ile Asn Leu Phe Asn Pro Glu Leu Val Ile Ile
340     345     350
Gly Gly Thr Ile Ser Leu Thr Gly Asp Tyr Ile Thr Gln Pro Ile Lys
355     360     365
Thr Ala Val Arg Lys Tyr Ser Leu Asn Leu Val Asn Lys Asp Ser Ala
370     375     380
Ile Val Thr Ser Lys Leu Lys Asp Arg Ala Gly Ile Val Gly Ala Cys
385     390     395     400
Met Leu Ala Arg Ser Arg Met Phe Glu Cys
405     410

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&lt;210&gt; 5337

&lt;211&gt; 94

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5337

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Ile Arg Gln Lys Glu Asn Asn Pro Asp Arg Lys Val Gln Phe Ala Val
1          5          10          15
Asp Lys Lys Ala Ser Ile Pro Val Ser Ile Arg Lys Val Leu Cys Arg
20          25          30
Glu Trp Lys Thr Gly Arg Thr Phe Lys Gln Met Ile Tyr Ser His Phe
35          40          45
Arg Ala Gln Tyr Phe Asn Leu Gln Lys Leu Tyr Phe Asn Val Thr Leu
50          55          60
Lys Phe Val Phe Arg Leu Gln Ile Ala Asn Ser Leu Asn Ala Lys Asp
65          70          75          80
Leu Leu Phe Ala Asp Lys Asn Lys Ala Ile Gly Lys Trp His
85          90

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&lt;210&gt; 5338

&lt;211&gt; 195

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5338

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Ala Met Lys Lys Asp Ile Ile Leu Ser Gly Val Gly Gly Gln Gly Ile
1          5          10          15
Leu Ser Ile Ala Thr Val Ile Gly Lys Ala Ala Leu Lys Asp Gly Leu
20          25          30
Tyr Met Lys Gln Ala Glu Val His Gly Met Ser Gln Arg Gly Gly Asp
35          40          45
Val Gln Ser Asn Leu Arg Ile Ser Asp Gln Pro Ile Ala Ser Asp Leu
50          55          60
Ile Pro Ser Gly Lys Cys Asp Leu Ile Ile Ser Leu Glu Pro Met Glu
65          70          75          80
Gly Leu Arg Tyr Leu Pro Tyr Leu Gly His Glu Gly Trp Leu Val Thr
85          90          95
Asn Glu Thr Pro Phe Val Asn Ile Pro Asn Tyr Pro Ala Glu Ser Asp
100          105          110
Val Met Ala Glu Ile Asn Lys Leu Pro His Lys Val Val Leu Asn Val
115          120          125
Asp Lys Val Ala Lys Glu Leu Gly Ser Thr Arg Val Ala Asn Ile Val
130          135          140
Leu Leu Gly Ala Thr Ile Pro Phe Leu Gly Ile Asp Tyr Glu Lys Ile
145          150          155          160
Gln Asp Ser Ile Arg Glu Ile Phe Gln Arg Lys Gly Asp Ala Ile Val
165          170          175
Glu Leu Asn Leu Lys Ala Leu Ala Ala Gly Lys Glu Ile Ala Glu Lys
180          185          190
Thr Met Lys
195

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&lt;210&gt; 5339

&lt;211&gt; 322

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5339

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Ser Met Lys Asn Phe Ala Leu Ile Gly Ala Ala Gly Tyr Ile Ala Pro
1          5          10          15
Arg His Leu Arg Ala Ile Lys Asp Thr Gly Asn Arg Leu Val Ala Ala
20          25          30
Tyr Asp Thr Phe Asp Ser Val Gly Ile Met Asp Ser Phe Phe Pro Glu

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<210> 5340
<211> 89
<212> PRT
<213> B.fragilis
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[illegible]

<210> 5341  
<211> 376

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5341

Phe	Ile	Met	Asn	Lys	Arg	Ile	Trp	Leu	Ser	Leu	Ala	His	Met	Gly	Gly
1				5					10					15	
Arg	Glu	Gln	Asp	Phe	Ile	Lys	Glu	Ala	Phe	Asp	Thr	Asn	Trp	Val	Val
			20					25					30		
Pro	Leu	Gly	Pro	Asn	Val	Asp	Ala	Phe	Glu	Gln	Ser	Leu	Ala	Glu	Tyr
		35					40					45			
Leu	His	Glu	Asp	Arg	Arg	Val	Val	Ala	Leu	Ser	Ala	Gly	Thr	Ala	Ala
	50					55					60				
Leu	His	Leu	Gly	Leu	Ile	Leu	Leu	Asn	Val	Lys	Pro	Gly	Asp	Glu	Val
65					70					75					80
Ile	Cys	Gln	Ser	Phe	Thr	Phe	Ala	Ala	Ser	Ala	Asn	Pro	Ile	Ser	Tyr
				85					90					95	
Leu	Glu	Ala	Lys	Pro	Val	Phe	Val	Asp	Ser	Glu	Lys	Asp	Thr	Trp	Asn
			100					105					110		
Met	Asp	Pro	Val	Leu	Leu	Glu	Glu	Ala	Ile	Lys	Asp	Arg	Leu	Arg	Lys
		115					120					125			
Thr	Gly	Lys	Leu	Pro	Lys	Ala	Ile	Ile	Pro	Val	His	Leu	Tyr	Gly	Met
	130					135					140				
Pro	Ala	Lys	Met	Asp	Glu	Ile	Met	Asp	Ile	Ala	Gly	Arg	Tyr	Gly	Ile
145					150					155					160
Pro	Val	Leu	Glu	Asp	Ala	Ala	Glu	Ala	Leu	Gly	Ser	Glu	Leu	Asn	Gly
				165					170					175	
Arg	Lys	Cys	Gly	Thr	Phe	Gly	Glu	Leu	Ala	Ala	Leu	Ser	Phe	Asn	Gly
			180					185					190		
Asn	Lys	Met	Ile	Thr	Thr	Ser	Gly	Gly	Gly	Ala	Leu	Ile	Cys	Arg	Thr
		195					200					205			
Glu	Glu	Glu	Ala	Arg	Gln	Thr	Lys	Phe	Tyr	Ala	Thr	Gln	Ala	Arg	Asp
	210					215					220				
Ala	Ala	Pro	His	Tyr	Gln	His	Thr	His	Ile	Gly	Tyr	Asn	Tyr	Arg	Met
225					230					235					240
Ser	Asn	Ile	Cys	Ala	Gly	Ile	Gly	Arg	Gly	Gln	Met	Phe	Val	Leu	Asp
				245					250					255	
Glu	His	Ile	Ala	Arg	Arg	Arg	Ala	Ile	His	Ser	Leu	Tyr	Val	Asp	Leu
		260					265						270		
Leu	Lys	Asp	Val	Ala	Gly	Ile	Thr	Val	Met	Glu	Asn	Pro	Asp	Ser	Arg
		275					280					285			
Phe	Ala	Ser	Asn	Phe	Trp	Leu	Thr	Cys	Ile	Leu	Val	Asp	Pro	Lys	Leu
	290					295					300				
Ala	Gly	Lys	Ser	Arg	Glu	Asp	Ile	Arg	Leu	Lys	Leu	Asp	Ser	Glu	Asn
305					310					315					320
Ile	Glu	Thr	Arg	Pro	Leu	Trp	Lys	Pro	Met	His	Leu	Gln	Pro	Val	Phe
				325					330					335	
Thr	Asp	Ala	Pro	Phe	Tyr	Gly	Asn	Gly	Thr	Ser	Glu	Arg	Leu	Phe	Asp
			340					345					350		
Ile	Gly	Leu	Cys	Leu	Pro	Ser	Gly	Pro	Thr	Leu	Thr	Asp	Glu	Asp	Ile
		355					360					365			
Arg	Arg	Val	Val	Asp	Met	Ile	Arg								
		370					375								

&lt;210&gt; 5342

&lt;211&gt; 522

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5342

Lys Lys Met Lys Gln Lys Gln Phe Tyr Phe Ile Tyr Val Phe Leu Leu  
 1 5 10 15  
 Ser Met Thr Phe Leu Gly Ala Cys Ser Lys Asp Ser Pro Asn Glu Leu  
 20 25 30  
 Ile Pro Asn Thr Ile Val Lys Ile Glu Ile Asp Glu Leu Pro Gly Lys  
 35 40 45  
 Arg Ile Tyr Phe Ile Gly Glu Leu Asp Val Ser Asp Met Thr Leu  
 50 55 60  
 Lys Val Phe Tyr Ser Asn Glu Thr Ser Glu Ile Val Pro Val Lys Lys  
 65 70 75 80  
 Asp Glu Val Thr Gly Phe Asn Ser Thr Val Pro Glu Asn Asp Gln Ile  
 85 90 95  
 Leu Glu Val His Lys Gly Ser Phe Thr Val Thr Phe Lys Ile Gln Val  
 100 105 110  
 Leu Ile Asn Asp Ile Gln Ala Ile Ser Ile Lys Thr Leu Pro Ser Lys  
 115 120 125  
 Thr Val Tyr Thr Leu Gly Glu Pro Leu Ser Leu Ser Asn Met Val Leu  
 130 135 140  
 Glu Ile Asn Tyr Ala Asp Gly Thr Ile Lys Glu Asn Ser Ala Pro Ser  
 145 150 155 160  
 Ala Asp Trp Val Gln Gly Phe Asn Ser Ser Val Pro Ala Gln Leu Gln  
 165 170 175  
 Ile Val Thr Leu Glu Leu Asp Gly Lys Gln Val Ser Phe Asp Val Gln  
 180 185 190  
 Ile Leu Pro Val Lys Val Asp Gly Asp Lys Val Val Ser Val Ile Asp  
 195 200 205  
 Ser Asp Phe Thr Ser Ile Thr Phe Pro Asp Gly Ile Arg Thr Ile Gly  
 210 215 220  
 Ser Lys Ala Phe Glu Asn Lys Asn Ile Lys Ala Ser Glu Leu Leu Phe  
 225 230 235 240  
 Pro Ala Ser Leu Ser Thr Ile Glu Gln Ala Ala Phe Ala Tyr Cys Arg  
 245 250 255  
 Asn Leu Lys Ile Val Asp Leu Ser His Thr Ser Ile Lys Glu Leu Pro  
 260 265 270  
 Glu Glu Ala Phe Leu Phe Ser Gly Ile Lys Lys Ile Ala Leu Pro Ala  
 275 280 285  
 Ser Leu Glu Ile Val Gly Lys Glu Ala Phe Tyr Gly Cys Thr Asp Leu  
 290 295 300  
 Asn Val Ile Asp Ile Ser His Thr Ser Val Lys Glu Leu Gln Asn Gly  
 305 310 315 320  
 Ala Phe Gly Lys Ser Gly Ile Ser Ser Ile Ser Leu Pro Ser Thr Phe  
 325 330 335  
 Lys Ile Val Gly Thr Ser Ala Phe Ile Glu Thr Lys Asn Leu Lys Glu  
 340 345 350  
 Leu Thr Leu Pro Glu Gly Ser Glu Val Ile Asp Leu Glu Ala Phe Ser  
 355 360 365  
 Gly Ser Ser Ile Gln Lys Val Thr Leu Pro Asn Thr Ile Tyr His Ile  
 370 375 380  
 Asp Arg Ser Phe Tyr Asn Cys Pro Glu Leu Thr Thr Ile Glu Thr Tyr  
 385 390 395 400  
 Gly Thr Arg Thr Thr Pro Ser Pro Val Asp Arg Thr Ala Ala Ile Val  
 405 410 415  
 Ser Glu Cys Phe Asn His Ser Pro Lys Leu Thr Val Leu Lys Ile Pro  
 420 425 430  
 Ala Ser Ile Ala Lys Ile Gly Ile Ser Ala Leu Asn Lys Cys Gln Val  
 435 440 445  
 Lys Thr Leu Ile Leu Pro Ala Ser Val Lys Ala Leu Asp Phe Asn Ala  
 450 455 460  
 Phe Gly Asn Ala Val Ser Leu Asp Glu Ile Ser Leu Met Ser Pro Thr



465 470 475 480  
 Met Val Thr Ala Asp Tyr Tyr Pro Val Ala Pro Gly Ile Gln Lys Ile  
 485 490 495  
 Arg Val Pro Gln Asn Leu Val Glu Thr Tyr Lys Gln Asn Lys Ala Trp  
 500 505 510  
 Lys Pro Phe Ala Glu Lys Ile Val Ala Leu  
 515 520

<210> 5343  
 <211> 325  
 <212> PRT  
 <213> B.fragilis

<400> 5343  
 Ile Met Lys Lys Glu Asp Leu Arg Ile Val Tyr Met Gly Thr Pro Asp  
 1 5 10 15  
 Phe Ala Val Glu Ala Leu Gln Cys Leu Val Glu Gly Gly Tyr Asn Val  
 20 25 30  
 Val Gly Val Ile Thr Met Pro Asp Lys Pro Ala Gly Arg Gly His Lys  
 35 40 45  
 Ile Gln Tyr Ser Pro Val Lys Gln Tyr Ala Leu Asp His Gln Leu Pro  
 50 55 60  
 Leu Leu Gln Pro Glu Lys Leu Lys Asp Glu Glu Phe Ile Gln Ala Leu  
 65 70 75 80  
 Arg Glu Trp Lys Ala Asp Leu Gln Ile Val Val Ala Phe Arg Met Leu  
 85 90 95  
 Pro Glu Val Val Trp Asn Met Pro Arg Leu Gly Thr Phe Asn Leu His  
 100 105 110  
 Ala Ser Leu Leu Pro Gln Tyr Arg Gly Ala Ala Pro Ile Asn Trp Ala  
 115 120 125  
 Val Ile Asn Gly Asp Thr Glu Thr Gly Ile Thr Thr Phe Phe Leu Lys  
 130 135 140  
 His Glu Ile Asp Thr Gly Glu Val Ile Gln Gln Val Arg Ile Pro Ile  
 145 150 155 160  
 Ala Asp Thr Asp Asn Val Glu Ile Val His Asp Lys Leu Met His Leu  
 165 170 175  
 Gly Gly Arg Leu Val Ile Glu Thr Val Asp Ala Ile Leu Glu Gly Lys  
 180 185 190  
 Val Lys Ser Ile Pro Gln Glu Glu Met Ala Val Ala Gly Glu Leu Arg  
 195 200 205  
 Pro Ala Pro Lys Ile Phe Lys Glu Thr Cys Arg Ile Asp Trp Asn Gln  
 210 215 220  
 Pro Val Lys Arg Val Tyr Asp Phe Ile Arg Gly Leu Ser Pro Tyr Pro  
 225 230 235 240  
 Ala Ala Trp Ser Glu Leu Val Asn Pro Glu Gly Glu Ala Val Val Val  
 245 250 255  
 Lys Ile Phe Glu Ser Glu Lys Leu Pro Lys Val His Thr Leu Ala Pro  
 260 265 270  
 Gly Ser Ile Val Thr Asp Gly Lys Asn Phe Leu Arg Val Ala Val Pro  
 275 280 285  
 Asp Gly Phe Val Asn Val Leu Ser Leu Gln Leu Pro Gly Lys Lys Arg  
 290 295 300  
 Leu Lys Thr Asp Glu Leu Leu Arg Gly Phe His Leu Thr Glu Ala Phe  
 305 310 315 320  
 Lys Met Lys Ala Val  
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<210> 5344  
 <211> 181

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5344

Arg	Phe	Ile	Glu	Arg	Met	Glu	Glu	Thr	Ala	Arg	Lys	Ile	Lys	Glu	Asn
1				5					10					15	
Thr	Ser	Cys	Trp	Tyr	Ala	Val	Tyr	Thr	Ala	Pro	Arg	Ala	Glu	Lys	Lys
			20					25					30		
Val	Lys	Glu	Gln	Leu	Asp	Lys	Ile	Gly	Val	Glu	Asn	Tyr	Leu	Pro	Leu
		35					40				45				
Gln	Pro	Val	Val	Arg	Leu	Trp	Asn	Asn	Arg	Lys	Lys	Lys	Ile	Phe	Ile
	50					55					60				
Pro	Val	Val	Pro	Gly	Cys	Leu	Phe	Val	His	Ile	Ser	Ser	Glu	Glu	Ile
65					70					75					80
Ala	His	Val	Ala	Gly	Ile	His	Gly	Val	Ala	Phe	Leu	Leu	Lys	Glu	Lys
				85					90					95	
Gly	Gln	Tyr	Val	Ser	Ile	Pro	Glu	Val	Gln	Met	Glu	Thr	Phe	Lys	Thr
			100					105					110		
Met	Ile	Glu	His	Ser	Cys	Glu	Leu	Val	Glu	Phe	Ala	Pro	Asn	Glu	Phe
	115						120					125			
Val	Pro	Gly	Thr	Ile	Val	Arg	Val	Ile	Ser	Gly	Gln	Leu	Gln	Gly	Leu
	130					135					140				
Glu	Ala	Glu	Leu	Val	Asp	Cys	Gln	Gly	Asn	Asn	Lys	Leu	Leu	Leu	Arg
145					150					155					160
Val	Glu	Gly	Leu	Gly	Cys	Ala	Leu	Val	Thr	Val	Ser	Thr	Asp	Cys	Val
				165					170					175	
Ala	Ser	Lys	Glu	Glu											
			180												

&lt;210&gt; 5345

&lt;211&gt; 341

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5345

Lys	Glu	Ile	Glu	Met	Ser	Glu	Val	Arg	His	Val	Leu	Gly	Ile	Ser	Gly
1				5					10					15	
Gly	Lys	Asp	Ser	Ala	Ala	Leu	Ala	Ile	Tyr	Leu	Lys	Asp	Lys	Tyr	Pro
			20					25					30		
Asn	Leu	His	Ile	Glu	Tyr	Tyr	Ser	Asp	Thr	Lys	Cys	Glu	Leu	Asp	
		35					40				45				
Glu	Thr	Ile	Gln	Phe	Ile	Asp	Arg	Leu	Arg	Ser	Tyr	Leu	Gly	His	Ile
	50					55					60				
Thr	Thr	Leu	Ile	Ala	Ala	Glu	Gly	Ser	Pro	Glu	Pro	Thr	Pro	Phe	Asp
65					70					75					80
His	Phe	Leu	Lys	Val	Ser	Gly	Gly	Tyr	Leu	Pro	Ser	Val	Gln	Ala	Arg
				85					90					95	
Trp	Cys	Thr	Gln	Lys	Met	Lys	Leu	Ala	Glu	Phe	Glu	Lys	Phe	Val	Gly
			100					105					110		
Asp	Thr	Pro	Thr	Val	Ser	Tyr	Val	Gly	Ile	Arg	Gly	Asp	Glu	Asp	Arg
	115						120					125			
Glu	Gly	Tyr	Val	Ser	Thr	Lys	Pro	Asn	Ile	Gln	Ala	Ile	Phe	Pro	Phe
	130					135					140				
Arg	Lys	Asn	Ile	Trp	Ser	Met	Asp	Val	Ile	His	Glu	Val	Leu	His	Asp
145					150					155					160
Lys	Asn	Ile	Glu	Asn	Phe	Ala	Glu	Cys	Tyr	Arg	Asn	Val	Ala	Asp	Asp
				165					170					175	
Glu	Thr	Tyr	Gln	Thr	Val	Glu	Ala	Ala	Leu	Thr	Ser	Lys	Leu	Thr	Lys
			180					185					190		

His Phe Tyr Tyr Ser Lys Lys Leu Asn Met Leu Leu Asp Ala Asp Val  
 195 200 205  
 Ile Thr Phe Asn His Ala Val Phe Ser Phe Leu Lys Gln Tyr Thr Asp  
 210 215 220  
 Tyr Pro Val Gly Lys Leu Asp Tyr Phe Pro Leu Ile Asp Asn Asp Glu  
 225 230 235 240  
 Val Leu Val Arg Glu Glu Ile Phe Arg Ile Leu Glu Asp Ser Gly Val  
 245 250 255  
 Gly Ile Pro Ala Tyr Tyr Asn Leu Ile Asp Phe Glu Val Asp Gly Lys  
 260 265 270  
 Lys Gly Gln Tyr Cys Arg Ser Arg Ser Gly Cys Tyr Phe Cys Phe Phe  
 275 280 285  
 Gln Gln Lys Ile Glu Trp Ile Trp Leu Tyr Glu Gln His Pro Asp Leu  
 290 295 300  
 Phe Lys Lys Ala Met Glu Tyr Glu Lys Asp Gly Tyr Thr Trp Ile Gln  
 305 310 315 320  
 Gly Glu Pro Leu Ser Glu Leu Ile Arg Ser Gly Val Val Cys Gly Lys  
 325 330 335  
 Ser Ser Leu Thr Arg  
 340

<210> 5346

<211> 393

<212> PRT

<213> B.fragilis

<400> 5346

Met Gly Asn Glu Lys Lys Lys Val Val Lys Ile Val Pro Thr Tyr Phe  
 1 5 10 15  
 Glu His Glu Thr Arg Asp Leu Lys Glu Ile Ser Val Leu Asn Ser Leu  
 20 25 30  
 Gly Cys Asn Val Ile Val Val Ala Lys Gly Asp Asn Ala Val Ile Ile  
 35 40 45  
 Glu Glu Ser Cys Tyr Ile Leu His Arg Leu Cys Ser Arg Pro Leu Met  
 50 55 60  
 Pro Phe Val Ser Asn Leu Phe Leu Asn Arg Leu Phe Ser Leu Tyr Ile  
 65 70 75 80  
 Trp Val Arg Tyr Val Arg Lys Leu His Gly Glu Leu Leu Ser Cys His  
 85 90 95  
 Asp Leu Phe Cys Leu Cys Ile Gly Trp Leu Ser Thr Leu Gly Leu Arg  
 100 105 110  
 Lys Lys Pro Phe Leu Val Tyr Asp Ser His Glu Phe Glu Tyr Gly Arg  
 115 120 125  
 Asn Cys Lys Arg Asn Phe Val Ser Lys Leu Phe Ile Lys Thr Leu Glu  
 130 135 140  
 Arg Phe Leu Cys Lys Lys Thr Ala Leu Asn Ile Val Val Asn Glu Ser  
 145 150 155 160  
 Ile Ala Asp Ala Val Gln Thr Leu His Gly Leu Asn Asn Arg Pro Leu  
 165 170 175  
 Val Val Arg Asn Val Pro Leu Tyr Trp Asn Ile Asp Val Asn Lys Cys  
 180 185 190  
 Val Leu Arg Arg Lys Lys Ile Cys Glu Ala Tyr Gly Ile Pro Ile Asp  
 195 200 205  
 Ser Phe Ile Ile Met Tyr His Gly Val Ile Ala Ala Gly Arg Gly Ile  
 210 215 220  
 Glu Asn Ala Ile Tyr Ala Val Glu Asn Val Glu Asn Thr Cys Leu Leu  
 225 230 235 240  
 Ile Leu Gly Asn Gly Glu Lys Ser Tyr Ile Ala Leu Leu Glu Lys Met  
 245 250 255

Ile Ser Ser Leu Arg Leu Glu Gln Lys Val Phe Phe His Thr Ala Val  
 260 265 270  
 Glu His Ser Ile Leu Trp Glu Tyr Ile Gly Ser Val Asp Val Glu Leu  
 275 280 285  
 Ser Val Ile Leu Asn Thr Cys Ile Ser Tyr Tyr Tyr Ala Leu Pro Asn  
 290 295 300  
 Lys Ile Phe Glu Ser Ile Gln Ala Met Ile Pro Leu Ile Val Ser Asp  
 305 310 315 320  
 Phe Pro Glu Met Glu Arg Val Val Lys Met Tyr Asp Ile Gly Val Cys  
 325 330 335  
 Cys Lys Ser Asp Asp Val Asn Ser Leu Val Glu Ala Ile Arg Leu Met  
 340 345 350  
 Asn Lys Asp Lys Val Leu Tyr Ser Arg Phe Lys Ala Asn Met Gln Asp  
 355 360 365  
 Ala Lys Lys Glu Leu Cys Trp Glu Asn Glu Lys Glu Ile Leu Glu Gly  
 370 375 380  
 Ala Tyr Arg Ser Ile Leu Met Asp Ile  
 385 390

<210> 5347

<211> 606

<212> PRT

<213> B.fragilis

<400> 5347

Arg Trp Ser Asp Gln Asp Tyr Ser Arg Met Met Glu Lys Glu Lys Ile  
 1 5 10 15  
 Ser Leu Leu Gln Arg Phe Ile Ile Trp Arg Glu Asn Lys Ile Lys Glu  
 20 25 30  
 Lys Gln Phe Ile Leu Ile Leu Ser Phe Leu Val Gly Ile Phe Thr Ala  
 35 40 45  
 Ile Ala Ala Leu Leu Leu Lys Phe Phe Ile His Thr Ile Gln Asn Phe  
 50 55 60  
 Leu Thr Asp Asn Phe Asn Thr Thr Glu Ala Asn Tyr Leu Tyr Leu Val  
 65 70 75 80  
 Tyr Pro Val Val Gly Ile Phe Leu Ala Gly Trp Phe Val Arg Asn Ile  
 85 90 95  
 Val Lys Asp Asp Ile Ser His Gly Val Thr Lys Ile Leu Tyr Ala Ile  
 100 105 110  
 Ser Arg Arg Gln Gly Arg Ile Lys Arg His Asn Ile Trp Ser Ser Thr  
 115 120 125  
 Ile Ala Ser Ala Ile Thr Ile Gly Phe Gly Gly Ser Val Gly Ala Glu  
 130 135 140  
 Ala Pro Ile Val Leu Thr Gly Ser Ala Ile Gly Ser Asn Leu Gly Ser  
 145 150 155 160  
 Met Phe Lys Met Glu His Arg Thr Leu Met Leu Leu Val Gly Cys Gly  
 165 170 175  
 Ala Ala Gly Ala Ile Gly Gly Ile Phe Lys Ala Pro Ile Ala Gly Leu  
 180 185 190  
 Val Phe Thr Leu Glu Val Leu Met Ile Asp Leu Thr Met Ser Ser Leu  
 195 200 205  
 Leu Pro Leu Leu Ile Ser Ala Val Thr Ala Ala Thr Val Ser Tyr Ile  
 210 215 220  
 Thr Thr Gly Gln Glu Ala Met Phe Lys Phe His Leu Asp Gln Pro Phe  
 225 230 235 240  
 Glu Leu Glu Arg Ile Pro Tyr Val Ile Leu Leu Gly Ile Phe Cys Gly  
 245 250 255  
 Leu Val Ser Leu Tyr Phe Thr Arg Ala Met Asn Ser Val Glu Gly Val  
 260 265 270

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Phe Gly Lys Leu Ser Asn Pro Tyr Lys Lys Leu Ala Leu Gly Gly Val  
 275 280 285  
 Met Leu Ser Val Leu Ile Phe Leu Phe Pro Pro Leu Tyr Gly Glu Gly  
 290 295 300  
 Tyr Asp Thr Ile Glu Leu Leu Leu Asn Gly Val Ser Asn Ala Asp Trp  
 305 310 315 320  
 Asp Thr Val Leu Asn Asn Ser Leu Phe Tyr Gly Tyr Gly Asn Leu Leu  
 325 330 335  
 Leu Val Tyr Leu Val Leu Ile Ile Leu Lys Val Phe Ala Ser Ser  
 340 345 350  
 Ala Thr Asn Gly Gly Gly Gly Cys Gly Gly Ile Phe Ala Pro Ser Leu  
 355 360 365  
 Tyr Leu Gly Cys Ile Ala Gly Phe Val Phe Ser His Phe Ser Asn Asp  
 370 375 380  
 Phe Asp Phe Thr Ser Thr Leu Pro Glu Lys Asn Phe Ala Leu Met Gly  
 385 390 395 400  
 Met Ala Gly Val Met Ser Gly Val Met His Ala Pro Leu Thr Gly Val  
 405 410 415  
 Phe Leu Ile Ala Glu Leu Thr Gly Gly Tyr Asp Leu Phe Leu Pro Leu  
 420 425 430  
 Met Ile Val Ser Val Ser Ser Tyr Leu Thr Ile Ile Val Phe Glu Pro  
 435 440 445  
 His Ser Ile Tyr Ser Met Arg Leu Ala Lys Lys Gly Gln Leu Leu Thr  
 450 455 460  
 His His Lys Asp Lys Ala Val Leu Thr Leu Met Lys Val Glu Asn Val  
 465 470 475 480  
 Val Glu Thr Asp Phe Val Ser Val Arg Pro Glu Met Asp Leu Gly Glu  
 485 490 495  
 Leu Val Lys Ala Ile Ser Thr Ser His Arg Asn Met Phe Pro Val Thr  
 500 505 510  
 Asp Lys Asp Gly Val Leu Leu Gly Val Val Leu Leu Asp Asp Ile Arg  
 515 520 525  
 Asn Ile Met Phe Arg Gln Glu Leu Tyr His Arg Phe Thr Val Ser Lys  
 530 535 540  
 Leu Met Thr Ser Val Pro Ala Arg Leu Tyr Asp Thr Asp Ser Met Glu  
 545 550 555 560  
 Gln Val Met Gln Thr Phe Asp Asp Thr Lys Ala Trp Asn Leu Pro Val  
 565 570 575  
 Val Asn Glu Glu Gly Lys Tyr Leu Gly Phe Val Ser Lys Ser Lys Ile  
 580 585 590  
 Phe Asn Ser Tyr Arg Gln Val Leu Val His Phe Ser Glu Asp  
 595 600 605

&lt;210&gt; 5348

&lt;211&gt; 83

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5348

Asn His Gly Glu Lys Ser Gly Gly Ser Glu Cys Tyr Ser Cys Gly Tyr  
 1 5 10 15  
 Ser Ser Leu Ser Leu Asp Ala Cys Leu Ile Lys Ala Asn Asp Ser Asp  
 20 25 30  
 Pro Val Tyr Leu Ser Thr Asn Gly Val Lys Ser His Ile Lys Ser Val  
 35 40 45  
 Glu Asp Phe Asn Lys Val Gly Phe Asp Trp Asp Lys Ile Lys Val Met  
 50 55 60  
 Ser Pro Ala Glu Val Asp Ala Ile Pro Thr Ala Pro Glu Tyr Glu Ile  
 65 70 75 80

Ala Asn Trp

<210> 5349  
 <211> 311  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5349

Tyr Lys Asn Glu Ile Ile Met Glu Lys Ile Ile Gly Leu Ile Asn Ala  
 1 5 10 15  
 Pro Phe Thr Pro Phe Tyr Glu Asn Gly Glu Val Asn Tyr Glu Pro Ile  
 20 25 30  
 Glu Ala Tyr Ala Lys Met Leu Val Lys Asn Gly Leu Gln Gly Val Phe  
 35 40 45  
 Ile Asn Gly Ser Ser Gly Glu Gly Tyr Met Leu Thr Asp Glu Glu Arg  
 50 55 60  
 Met Lys Leu Ala Glu Arg Trp Val Glu Val Ser Pro Lys Gly Phe Lys  
 65 70 75 80  
 Val Ile Val His Val Gly Ser Cys Cys Val Lys Ser Ser Arg Lys Leu  
 85 90 95  
 Ala Glu His Ala Gln Lys Ile Gly Ala Trp Gly Ile Gly Ala Met Ala  
 100 105 110  
 Pro Pro Phe Pro Lys Val Gly Arg Val Glu Glu Leu Val Lys Tyr Cys  
 115 120 125  
 Glu Glu Ile Ala Cys Gly Ala Pro Asp Leu Pro Phe Tyr Tyr Tyr His  
 130 135 140  
 Ile Pro Ala Phe Asn Gly Ala Phe Leu Ser Met Val Ala Phe Leu Glu  
 145 150 155 160  
 Ala Val Asp Gly Arg Ile Pro Asn Phe Ala Gly Ile Lys Tyr Thr Phe  
 165 170 175  
 Glu Ser Met Tyr Glu Tyr Asn Gln Cys Arg Leu Tyr Lys Gly Gly Lys  
 180 185 190  
 Phe Asp Met Leu His Gly Gln Asp Glu Thr Ile Leu Pro Cys Leu Ala  
 195 200 205  
 Met Gly Gly Ala Gln Gly Gly Ile Gly Gly Thr Thr Asn Tyr Asn Gly  
 210 215 220  
 Val Asn Leu Val Gly Ile Ile Glu Ala Trp Lys Ala Gly Asp Leu Glu  
 225 230 235 240  
 Lys Ala Arg Glu Leu Gln Asn Phe Ser Gln Glu Val Ile Asn Val Ile  
 245 250 255  
 Cys His Phe Arg Gly Asn Ile Val Gly Gly Lys Arg Ile Met Lys Leu  
 260 265 270  
 Ile Gly Leu Asp Leu Gly Lys Asn Arg Thr Pro Phe Gln Asn Met Thr  
 275 280 285  
 Asp Asp Glu Glu Val Arg Met Lys Ala Glu Leu Glu Ala Ile His Phe  
 290 295 300  
 Phe Asp Arg Cys Asn Lys Phe  
 305 310

<210> 5350  
 <211> 370  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5350

Tyr Lys Met Glu Glu Tyr Lys Arg Cys Thr Arg Cys Val Met Asp Asn  
 1 5 10 15  
 Lys Ser Asp Glu Thr Ile Thr Phe Asp Lys His Gly Arg Cys Asn Tyr

20 25 30  
 Cys Thr Asp Ala Leu Asn Leu Ile Gly Lys Val Tyr Phe Pro Asn Ala  
 35 40 45  
 Glu Gly Glu Gln Lys Leu Arg Gln Met Ile Glu Met Leu Lys Tyr Glu  
 50 55 60  
 Gly Lys Gly Lys Gln Tyr Asp Cys Leu Met Gly Ile Ser Gly Gly Leu  
 65 70 75 80  
 Asp Ser Ala Tyr Leu Ala Tyr Leu Gly Ser Val Lys Trp Gly Leu Arg  
 85 90 95  
 Ile Leu Ala Val His Val Asp Asp Gly Tyr Asp Thr Glu Leu Ala Thr  
 100 105 110  
 Ser Asn Ile Lys Asn Leu Cys Glu Ala Cys Gly Ile Glu Leu Met Val  
 115 120 125  
 Glu Ala Pro Asp Ser Glu Gln Phe Asn Ala Met Thr Lys Ala Phe Ile  
 130 135 140  
 Lys Ala Glu Val Pro Asn Ile Ala Ile Pro Gln Asp Asn Ile Leu Phe  
 145 150 155 160  
 Ala Cys Leu Tyr Asn Tyr Ala Arg Lys Tyr Lys Val Tyr Asn Phe Leu  
 165 170 175  
 Ser Gly Gly Asn Phe Ala Leu Glu Cys Val Leu Gln Lys Gly Asn Thr  
 180 185 190  
 Tyr Glu Val Phe Asp Met Ile His Asn Arg Asp Ile Gln Lys Lys Phe  
 195 200 205  
 Gly Ser Lys Pro Ile Asp Lys Leu Ser Phe Leu Ser Ser Tyr Gln Lys  
 210 215 220  
 Ile Val Asp Thr Tyr Leu Tyr Lys Ile Lys Ser Leu Arg Pro Leu Asn  
 225 230 235 240  
 Tyr Ile Asp Tyr Asn Lys Glu Cys Ala Ile His Glu Leu Asn Asp Phe  
 245 250 255  
 Cys Gly Phe Thr Tyr Tyr Glu Ala Lys His Leu Glu Asn Ile Leu Thr  
 260 265 270  
 Lys Val Thr Gln Leu Tyr Trp Phe Tyr His Lys Phe His Val Asp Lys  
 275 280 285  
 Arg Thr Ser His Leu Ser Ser Leu Ile Val Ser Gly Gln Met Ser Arg  
 290 295 300  
 Glu Gln Ala Leu Ala Glu Leu Glu Lys Pro Val Tyr Asp Lys Asn Lys  
 305 310 315 320  
 Met Glu Lys Asp Ile Glu Phe Val Leu Lys Lys Ile Glu Met Ser Arg  
 325 330 335  
 Glu Glu Phe Glu Glu Leu Ile Asn Arg Pro Gly Lys Gln His Ser Asp  
 340 345 350  
 Tyr Arg Met Asp Lys Phe Leu Pro Phe Leu His Lys Ile Lys Thr Phe  
 355 360 365  
 Phe Asp  
 370

<210> 5351  
 <211> 490  
 <212> PRT  
 <213> B.fragilis

<400> 5351  
 Glu Arg Phe Trp Lys Val Cys Lys Ile His Trp Asn Leu Phe Ala Val  
 1 5 10 15  
 Asn Ile Leu Arg Ser Tyr Phe Asn Lys Ile Phe Met Thr Ala Ile Phe  
 20 25 30  
 Ile Val Val Phe Ser Val Ile Tyr Leu Leu Val Leu Tyr Asn Phe Tyr  
 35 40 45  
 Ile Ala Ile Cys Gly Arg Ile Arg Val Phe Thr Ile Thr Ser Phe Phe

50		55		60											
Cys	Leu	Cys	Tyr	Ile	Ser	Phe	Ala	Tyr	Ile	Gly	Ser	Ile	Leu	Leu	Asn
65					70					75					80
Ile	Met	His	Phe	Glu	Ala	Glu	Asp	Tyr	Leu	Gly	Met	Tyr	Ala	Arg	Pro
				85					90					95	
Asp	Ile	Phe	Phe	Leu	Val	Trp	Val	Phe	Thr	Leu	Leu	Gly	Leu	Leu	Phe
			100					105					110		
Leu	Leu	Leu	Gly	Phe	Ala	Ile	Ala	Asn	Ile	Val	Phe	Lys	Asn	Ile	Cys
		115					120					125			
Tyr	Pro	Arg	Lys	Asn	Arg	Asp	Leu	Gln	Leu	Ile	Lys	Val	Ser	Ile	Ser
	130					135					140				
Cys	Phe	Asp	Asn	Ser	Asn	Lys	Asn	Phe	Phe	Val	Ile	Leu	Phe	Leu	Phe
145					150					155					160
Ile	Leu	Ser	Phe	Phe	Val	Leu	Leu	Val	Tyr	Arg	Asn	Ala	Ile	Gly	Gly
			165					170						175	
Phe	Pro	Leu	Glu	Ser	Val	Phe	Ser	Ala	Asp	Asn	Gly	Thr	Ala	Leu	Ala
			180					185					190		
Phe	Leu	Arg	Ser	Glu	Ala	Thr	Asn	Asn	Phe	Ser	Gly	Lys	Phe	Tyr	Arg
	195						200					205			
Tyr	Val	Met	Phe	Met	Glu	Thr	Leu	Pro	Leu	Phe	Leu	Phe	Ile	Val	Val
	210					215					220				
Ser	Phe	Ile	Lys	Ser	Cys	Lys	Lys	Lys	Lys	Trp	Lys	Tyr	Leu	Tyr	Ile
225					230					235					240
Ala	Leu	Phe	Leu	Tyr	Asn	Leu	Phe	Tyr	Ser	Leu	Ser	Thr	Ile	Gln	Lys
			245					250						255	
Ala	Pro	Ile	Leu	Lys	Phe	Leu	Leu	Leu	Cys	Cys	Ile	Ile	Phe	Phe	Tyr
		260					265					270			
Lys	Asn	Gly	Phe	Ile	Asn	Lys	Lys	Ile	Ile	Leu	Lys	Leu	Val	Val	Phe
	275					280					285				
Ser	Cys	Gly	Leu	Val	Leu	Val	Met	Tyr	Met	Cys	Phe	Met	Gly	Leu	Glu
	290				295					300					
Asp	Ala	Pro	Ile	Glu	Val	Ile	Ile	Glu	Gly	Ala	Leu	His	Arg	Val	Phe
305				310				315						320	
Ile	Gly	Ala	Ile	His	Pro	Phe	Tyr	Trp	Tyr	Ile	Lys	Tyr	Ala	Glu	Glu
			325					330						335	
Phe	Gly	Phe	Leu	Tyr	Gly	Thr	Ser	Phe	Pro	Asn	Pro	Ala	Gly	Ile	Phe
		340					345					350			
Pro	Phe	Glu	Ser	Phe	Arg	Leu	Thr	Val	Glu	Ile	Met	Asn	Tyr	Ala	Lys
	355					360					365				
Gly	Asp	Leu	Leu	Gly	Asp	Leu	Val	Gly	Ser	Met	Pro	Thr	Val	Tyr	Ile
	370				375					380					
Gly	Glu	Met	Tyr	Ile	Asn	Phe	Gly	Leu	Tyr	Gly	Leu	Ala	Leu	Ala	Ser
385				390				395							400
Leu	Met	Phe	Gly	Phe	Ile	Leu	Gln	Thr	Leu	Asp	Ile	Leu	Phe	Val	Arg
			405					410						415	
Tyr	Leu	Leu	Val	Asn	Lys	Ser	Val	Leu	Val	Ser	Ser	Leu	Tyr	Ile	Tyr
		420					425					430			
Met	Ile	Tyr	Tyr	Phe	Ser	Gln	Phe	Thr	Glu	Thr	Gly	Ile	Ser	Gly	Ile
	435					440					445				
Ile	Ile	Asp	Thr	Asp	Leu	Tyr	Ile	Val	Leu	Phe	Ile	Ser	Phe	Ile	Tyr
	450				455					460					
Cys	Leu	Ile	Asn	Arg	Tyr	Asn	Leu	Arg	Arg	Tyr	Gly	Lys	Lys	Lys	Gly
465			470					475							480
Leu	Pro	Cys	Tyr	Lys	Cys	Thr	Ser	Cys	Arg						
			485				490								

&lt;210&gt; 5352

&lt;211&gt; 125

&lt;212&gt; PRT



&lt;213&gt; B.fragilis

&lt;400&gt; 5352

Tyr Arg Leu Cys Lys Thr Phe Thr Gln Thr Val Tyr Ala Leu Ala Asp  
 1 5 10 15  
 Ile Met Thr Leu Phe Glu Leu Phe Leu Asn Lys Leu Leu Tyr Arg Phe  
 20 25 30  
 Tyr Arg Ser Val Leu Ser Ser Phe Ser Ile Tyr Ser Leu Val Phe Ile  
 35 40 45  
 His His Ile Thr Arg Tyr Ala Ala His Lys Thr Gly Lys Tyr Leu Arg  
 50 55 60  
 Lys Gln Ile Ser Lys Gln Leu Arg Val Lys Phe Lys Gln Thr Ser Lys  
 65 70 75 80  
 Gly Asn Asp Phe Phe Ser Glu Trp Leu Pro Gly Phe Val Leu Leu Val  
 85 90 95  
 Cys Phe Asp Lys Val Leu Gly Asn Ser Tyr Leu Leu Asn Ser Trp Arg  
 100 105 110  
 Tyr Gly Val Ile Val Gly Ser Asn His Arg Arg Arg His  
 115 120 125

&lt;210&gt; 5353

&lt;211&gt; 70

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5353

Ser Met Asp Cys Ile Met Gln Asn Asn Ile Phe Asp Tyr Ala Ala Leu  
 1 5 10 15  
 Leu Arg Gln Val Lys Ala Arg Val Ala Leu Ala Gln Lys Lys Ala Ile  
 20 25 30  
 Tyr Ala Ala Asn Gly Glu Met Leu Ser Met Tyr Trp Asp Ile Gly Lys  
 35 40 45  
 Leu Leu Ser Glu Ser Gln Thr Gln Ile Gly Trp Ala Thr Ile Arg Trp  
 50 55 60  
 Ser Ser Cys Pro Val Ile  
 65 70

&lt;210&gt; 5354

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5354

Lys Arg Arg Cys Arg Asn Met Ala Leu Phe Tyr Lys Ala Val Lys Ser  
 1 5 10 15  
 Thr Met Ala Thr Lys Ser Gly Asp Lys Lys Trp His Leu Asn Leu Val  
 20 25 30  
 Lys Val Gly Lys Val Val Ser Thr Gln Gln Leu Ala Glu Met Ile Ala  
 35 40 45  
 Glu Lys Ser Ser Leu Thr Pro Gly Asp Val His Asn Val Val Arg Asn  
 50 55 60  
 Leu Met Thr Ala Met Arg Ser Ala Leu Leu Asp Ser Lys Thr Val Arg  
 65 70 75 80  
 Leu Asp Gly Leu Gly Thr Phe Thr Met Lys Ala Arg Thr Arg Gly Arg  
 85 90 95  
 Gly Val Asp Lys Glu Glu Glu Val Asn Pro Asn Gln Val Ala Ala Leu  
 100 105 110  
 Leu Cys His Phe Thr Pro Glu Tyr Thr Arg Pro Ala Ala Ile Gly Thr  
 115 120 125



Ala Gly Ala Val Val Thr Ser Leu Phe Gly Lys Trp Thr Asp Gly Gly  
 370 375 380  
 Asn Leu Gly Leu Gly Phe Ala Ile Leu Gly Gly Ile Val Leu Leu Ala  
 385 390 395 400  
 Leu Gly Met Gln Leu Cys Phe Leu Arg Pro His Thr Asp Asn Met Glu  
 405 410 415

<210> 5356  
 <211> 227  
 <212> PRT  
 <213> B.fragilis

<400> 5356  
 Phe Lys Tyr Arg Arg Phe Asn Leu Pro Val Ser Ile Cys Lys Tyr His  
 1 5 10 15  
 Lys Tyr Gly Leu Phe Ile Pro Glu Ile Ser Val Ser Leu Tyr Arg Thr  
 20 25 30  
 Ile Thr Ile Ile Ile Met Gln Asp Ile Ile Asn Gly Arg Cys Gly Trp  
 35 40 45  
 Cys Gly Ser Asp Glu Leu Tyr Val Lys Tyr His Asp Gln Glu Trp Gly  
 50 55 60  
 Lys Leu Val Thr Asp Asp Lys Thr Leu Phe Glu Phe Leu Val Leu Glu  
 65 70 75 80  
 Ser Ala Gln Ala Gly Leu Ser Trp Ile Thr Ile Leu Lys Lys Arg Glu  
 85 90 95  
 Gly Tyr Arg Lys Ala Phe Cys Asn Phe Asp Ala Glu Ser Val Ala Gln  
 100 105 110  
 Met Thr Asp Glu Asp Val Glu Arg Leu Met His Phe Asp Gly Ile Val  
 115 120 125  
 Lys Asn Arg Leu Lys Ile Lys Ser Thr Ile Thr Asn Ala Arg Ser Phe  
 130 135 140  
 Leu Ala Val Gln Lys Glu Phe Gly Ser Phe Tyr Asp Tyr Thr Leu Ser  
 145 150 155 160  
 Phe Phe Pro Asp Arg Lys Pro Ile Val Asn Thr Phe Gln Ser Leu Ser  
 165 170 175  
 Glu Ile Pro Val Ser Ser Pro Glu Ser Asp Ala Met Ser Lys Asp Met  
 180 185 190  
 Lys Lys Arg Gly Phe Lys Phe Phe Gly Thr Thr Ile Cys Tyr Ala His  
 195 200 205  
 Leu Gln Ala Ser Gly Phe Met Asn Asp His Leu Val Asp Cys Ile Cys  
 210 215 220  
 Arg Lys Arg  
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<210> 5357  
 <211> 73  
 <212> PRT  
 <213> B.fragilis

<400> 5357  
 His Pro Cys Arg Thr Gly Met Gly Arg Gly Ile Val Pro Leu Asn Gln  
 1 5 10 15  
 Ser Leu Asn Glu Lys Ala Val Val Ile Thr Asp Phe Thr Asp Glu Asn  
 20 25 30  
 Gly Ile Asp Arg Met Lys Glu Gln Ile Gln Glu Lys Tyr Asn Arg Ile  
 35 40 45  
 Lys Ala Asp Val Arg Gln Ile Val Ala Asp Glu Leu Gln Arg Ile Gln  
 50 55 60  
 Asn Asp Pro Ala Leu Ala His Leu Ile

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<210> 5358  
 <211> 209  
 <212> PRT  
 <213> B.fragilis

<400> 5358

Asn Asp Ile Arg Cys Lys Ala Asn Asn Arg Ile Ser Lys Leu Asp Arg  
 1 5 10 15  
 Lys Val Phe His Tyr Pro Gly Val Pro Gln Leu Tyr Pro Phe Val Asn  
 20 25 30  
 Asn Ser Ile Asn Lys Ser Trp Tyr Ala Leu Arg Ile Thr Tyr Ser Arg  
 35 40 45  
 Glu Leu Ala Phe Lys Glu Tyr Leu Asp Ser Arg Gly Val Arg Asn Phe  
 50 55 60  
 Leu Pro Met Arg Tyr Glu Tyr Val Phe Arg Gly Glu Arg Lys Ile Arg  
 65 70 75 80  
 Lys Leu Val Pro Val Val His Asn Leu Val Phe Val Tyr Ala Thr Arg  
 85 90 95  
 Ser Glu Val Asp Glu Met Lys Ser Thr Val Gly Ala Ser Leu Pro Ile  
 100 105 110  
 Arg Tyr Ile Met Asp Arg Glu Thr Arg Gln Pro Ile Thr Ile Pro Glu  
 115 120 125  
 Val Gln Met Arg Ser Phe Ile Ala Val Ala Gly Asn Tyr Asp Glu Gln  
 130 135 140  
 Val Val Tyr Leu Asp Pro Ser Val Val Ser Met Lys Arg Gly Asp Arg  
 145 150 155 160  
 Val Arg Val Thr Gly Gly Ile Phe Glu Gly Val Glu Gly Glu Phe Val  
 165 170 175  
 Arg Ile Lys Gly Asp Arg Arg Val Val Val Ser Ile Gln Gly Val Met  
 180 185 190  
 Ala Val Ala Thr Ala Phe Ile His Pro Ser Leu Ile Glu Leu Ile Lys  
 195 200 205  
 Asn

<210> 5359  
 <211> 411  
 <212> PRT  
 <213> B.fragilis

<400> 5359

Asn Arg Gly Arg Asn Lys Asn Leu Tyr Pro Leu Gly His Ile Leu Leu  
 1 5 10 15  
 Ile Leu Ser Asp His Ile His His Ser Pro Asp Ile Leu Ile Cys Gln  
 20 25 30  
 Cys Arg Ser Arg Arg Gln Thr Gln Ala Asp Ile Glu Gln Pro Leu Thr  
 35 40 45  
 Arg Thr Ile Pro Ile Glu Arg Ser Ile Arg Glu His Arg Leu Lys Met  
 50 55 60  
 His Arg Leu Pro Gln Arg Thr Cys Leu Tyr Val Leu Gly Val Gln Leu  
 65 70 75 80  
 Gln Thr Asp Ile Leu Thr Thr Leu Thr Arg Lys Leu Arg Ile Asn Gln  
 85 90 95  
 Asn Thr Ser Lys Pro Lys Val Gly Ser Lys Pro Arg Ile Arg Val Leu  
 100 105 110  
 His Asp Arg Asn Thr Arg His Ile Phe Gln Gln Ile Asn Ile Gln Arg  
 115 120 125

Val	Asn	Gly	Thr	Ala	Thr	Gly	Asn	Met	Phe	Ile	Glu	Asp	Lys	His	Leu
130						135					140				
Pro	Thr	Thr	Asp	Thr	Arg	Thr	Asp	Val	Ala	His	Thr	Val	Ile	Val	Thr
145					150					155					160
Asp	Met	Gly	Met	Leu	Val	Met	Arg	Ser	Gly	Ile	Thr	Ser	Leu	Arg	Ser
				165					170					175	
Val	Glu	Leu	Cys	Leu	Ser	Gly	Leu	Leu	Phe	Arg	Thr	Thr	Asp	Gln	Ser
			180					185					190		
Thr	Ser	Thr	Gly	Ser	Arg	Asp	His	Leu	Val	Ala	Ile	Glu	Arg	Glu	Ser
		195				200						205			
Gly	Gln	Phe	Thr	Glu	Cys	Ala	Thr	Leu	Pro	Ser	Val	Gln	Phe	Arg	Thr
		210				215					220				
Gln	Ser	Leu	Arg	Gly	Ile	Leu	Gln	Tyr	Gly	Asp	Thr	Ile	Thr	Thr	Arg
225					230					235					240
Asn	Ile	His	Asp	Leu	Val	His	Leu	Gly	Arg	His	Thr	Val	Lys	Val	Asp
				245					250					255	
Arg	Asn	Asn	Ser	Leu	Arg	Glu	Leu	Thr	Arg	Leu	Ala	Gln	Thr	Val	Leu
			260					265					270		
Tyr	Ser	Leu	Leu	Glu	Gln	Tyr	Arg	Ile	His	Ile	Pro	Gly	Ile	Leu	Leu
		275					280					285			
Thr	Val	His	Lys	Asn	Arg	Phe	Gly	Leu	Gln	Ile	Gly	Asn	Arg	Ile	Gly
		290				295					300				
Arg	Gly	Gly	Lys	Ser	Lys	Ala	Leu	Ala	Asp	His	Phe	Ile	Thr	Gly	Leu
305					310					315					320
His	Ile	Gln	Lys	Asn	Gln	Ala	Gln	Val	Lys	Cys	Ser	Arg	Ser	Ser	Thr
				325					330					335	
Gln	Ser	His	Tyr	Thr	Thr	Val	Phe	Met	Gln	Ile	Phe	Gly	Gln	Arg	Leu
			340					345					350		
Leu	Lys	Ser	Ile	His	Val	Arg	Ser	Gln	Arg	Asp	Asn	Pro	Val	Arg	Ile
		355						360				365			
Lys	Ser	Leu	Phe	Tyr	Lys	Val	Leu	Leu	Thr	Ala	Thr	His	Val	Ser	Lys
		370				375					380				
Arg	Lys	Pro	Asp	Ser	Phe	Val	His	Asn	Lys	Leu	Phe	Ile	Ile	Ile	Ser
385					390					395					400
Phe	Ser	Tyr	Val	Ile	Gly	Asn	Gln	Glu	Glu	Lys					
				405					410						

&lt;210&gt; 5360

&lt;211&gt; 771

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5360

Asn	Gln	Leu	Arg	Gln	Leu	Leu	Tyr	Ile	Ile	Tyr	Asn	Lys	Val	Cys	Pro
1				5					10					15	
Met	Leu	Lys	Ser	Asp	Val	Ile	Trp	Pro	Asn	Ser	Arg	Arg	Phe	Lys	Ser
			20					25					30		
Arg	Thr	Glu	Trp	Glu	Pro	Leu	Gly	Phe	Phe	Ser	Glu	Ala	Leu	Cys	Asn
		35					40					45			
Ser	Thr	Gln	Phe	Asp	Leu	Lys	Leu	Gly	Phe	Phe	Ser	Ser	Ser	Ala	Ile
		50				55					60				
Asn	Val	Leu	Ala	Asp	Gly	Phe	Ala	Thr	Phe	Leu	Tyr	Asn	Gly	Gly	Lys
65					70					75					80
Met	Arg	Met	Ile	Ile	Asn	Asp	Ile	Leu	Ser	Thr	Glu	Asp	Lys	Arg	Ala
				85					90					95	
Ile	Ile	Val	Ala	Asp	Ser	Cys	Asp	Asp	Val	Asp	Tyr	Phe	Asn	Leu	Gln
			100					105					110		
Asp	Leu	Gly	Gly	Met	Ser	Asp	Thr	Leu	Ser	Lys	Arg	Asn	Gln	His	Phe
		115					120						125		

Phe	Glu	Cys	Leu	Ala	Trp	Leu	Ile	Arg	His	Asn	Arg	Ile	Glu	Ile	Lys
130						135					140				
Val	Val	Val	Pro	Lys	Ala	Gly	Glu	Gly	Ile	Ala	His	Ser	Lys	Cys	Gly
145					150					155					160
Val	Phe	Phe	Asp	Gly	Leu	Asn	Arg	Val	Ala	Phe	Asp	Gly	Ser	Cys	Asn
				165					170					175	
Phe	Ser	Lys	Thr	Ala	Leu	Ile	Ala	Asn	Ile	Glu	Ser	Ile	Thr	Ala	Phe
			180					185					190		
Cys	Asp	Trp	Asp	Gly	Gln	Ser	Asp	Val	Cys	Arg	Ile	Lys	Asp	Val	Val
		195					200					205			
Asp	Asp	Phe	Glu	Arg	Thr	Phe	Ser	Gly	Asn	Asp	Glu	Ser	Val	Thr	Tyr
210						215					220				
Leu	Asn	Thr	Asp	His	Ile	Arg	Ile	His	Ile	Thr	Asp	Thr	Tyr	Lys	Asn
225					230					235					240
Lys	Asp	Ile	Gln	Glu	Leu	Leu	Ala	Asp	Glu	Ala	Gln	Leu	Ile	Asn	Asp
				245					250					255	
Arg	Leu	Glu	Asn	Asp	Leu	Pro	Lys	Thr	Val	Thr	Ala	Phe	Leu	Gly	Arg
				260					265				270		
Ala	Lys	Asn	Lys	Val	Lys	Ser	Ile	Ile	Glu	Arg	Ile	His	Gln	Asn	Glu
				275				280					285		
Ile	Gln	Arg	Gly	Lys	Glu	Ala	Ala	Pro	Arg	Phe	Pro	Tyr	Ser	Gln	Gly
290						295					300				
Pro	Arg	Glu	Tyr	Gln	Gln	Leu	Ala	Phe	Glu	Asn	Trp	Lys	Ala	Asn	Lys
305					310					315					320
Gln	Lys	Gly	Leu	Phe	Ala	Met	Ala	Thr	Gly	Thr	Gly	Lys	Thr	Ile	Thr
				325					330					335	
Ser	Leu	Asn	Cys	Leu	Leu	Glu	Ile	Tyr	Lys	Arg	Cys	Gly	Tyr	Tyr	Lys
			340					345					350		
Ala	Ile	Ile	Leu	Val	Pro	Thr	Ile	Thr	Leu	Val	Gly	Gln	Trp	Glu	Glu
			355					360				365			
Glu	Cys	Lys	Lys	Phe	Asn	Phe	Lys	Asn	Val	Ile	Arg	Val	Cys	Ser	Lys
				370			375				380				
Asn	Ser	Lys	Trp	Ala	Glu	Gln	Ile	Glu	Thr	Ile	Thr	Leu	Ser	Glu	Arg
385					390					395					400
Leu	Lys	Gly	Ser	Asp	Asn	Asn	Leu	Ser	Tyr	Ile	Ile	Ile	Ser	Thr	Tyr
				405					410					415	
Ala	Ser	Phe	Ile	Lys	Asp	Lys	Val	Phe	Lys	Ser	Leu	Ser	Val	Phe	Pro
			420					425					430		
Lys	Thr	Lys	Leu	Leu	Leu	Ile	Ala	Asp	Glu	Ala	His	Asn	Met	Gly	Ser
			435				440					445			
Arg	Arg	Met	Leu	Asn	Ile	Leu	Asp	Gly	Ile	Pro	Tyr	Leu	Arg	Arg	Ile
					455						460				
Gly	Leu	Ser	Ala	Thr	Pro	Glu	Arg	Gln	Phe	Glu	Glu	Glu	Ala	Asn	Gln
465					470					475					480
Thr	Leu	Tyr	His	Phe	Phe	Gly	Ala	Glu	Asn	Gly	Phe	Thr	Tyr	Glu	Tyr
				485					490					495	
Ser	Met	Gln	Glu	Ala	Ile	Asp	Lys	Gly	Val	Leu	Cys	Arg	Tyr	Tyr	Tyr
				500				505					510		
Tyr	Pro	His	Val	Val	Arg	Leu	Thr	Met	Ser	Glu	Met	Glu	Glu	Tyr	Met
				515			520					525			
Arg	Ile	Ser	Val	Gln	Leu	Ala	Lys	Phe	Phe	Asn	Asn	Asn	His	Phe	Ala
					535						540				
Asp	Ser	Asn	Glu	Ile	Leu	Thr	Ala	Leu	Leu	Leu	Lys	Arg	Lys	Arg	Ile
545					550					555					560
Ile	His	Lys	Ala	Glu	Asn	Lys	Leu	Glu	Val	Phe	Arg	Asn	Ile	Leu	Glu
				565					570					575	
Gln	Arg	Phe	Gln	Glu	Lys	Gly	Asn	Leu	Lys	Tyr	Thr	Leu	Val	Tyr	Val
				580				585					590		
Pro	Glu	Gly	Leu	Lys	Pro	Asp	Thr	Ala	Asp	Ala	Asp	Val	Tyr	Asp	Asp

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595	600	605
Thr Asp Gln Leu Gln Asp Asp Asp Tyr Ser Glu Lys Leu Ile Asn Glu		
610	615	620
Tyr Thr Ala Val Val Ser Gly Ile Asp Ser Lys Val Thr Val Arg Lys		
625	630	635
Phe Thr Ser Gly Ile Lys Glu Arg Glu Glu Leu Leu Lys Gly Phe Ala		
645	650	655
Asp Gly Asp Ile Glu Val Leu Thr Ser Met Lys Cys Leu Asp Glu Gly		
660	665	670
Val Asp Val Pro Arg Ser Glu Leu Ala Ile Phe Cys Ala Ser Thr Gly		
675	680	685
Asn Pro Arg Gln Phe Ile Gln Arg Arg Gly Arg Ile Leu Arg Lys His		
690	695	700
Pro Asp Lys His Met Ala Val Ile His Asp Leu Val Val Ala Pro Glu		
705	710	715
Val Asn Ile Gly Glu Gly Ser Tyr Ala Met Glu Arg Ser Leu Met Ala		
725	730	735
Thr Glu Leu Arg Arg Val Arg Asn Phe Ser Leu Leu Ser Glu Asn Ser		
740	745	750
Asp Asp Thr Ile Asn Glu Leu Glu Asp Ile Met Asn Tyr Tyr Asn Leu		
755	760	765
Ser Leu Phe		
770		

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 Ile Lys Lys Arg Phe Leu Phe Cys Glu Ile Phe Cys Leu Leu Asn Ser  
 1 5 10 15  
 Ser Ile Val Leu Ser Ile Asn Ser Ile Ala Thr Gly Ala Cys Arg Lys  
 20 25 30  
 Ala Thr Arg Phe Ala Ala Lys Asp Ser Ser Asn Val Glu Gln Cys Thr  
 35 40 45  
 His Ile Thr Ala Phe Ser Val Gly Gly Arg Gly Thr Asn Phe Ser Phe  
 50 55 60  
 Asn Ser Val Ile Lys Ala Asn Val Pro Ser Glu Pro Ala Asn Asn Leu  
 65 70 75 80  
 Gln Arg Leu Lys Asp Ser Glu Gln Phe Leu Ser Lys  
 85 90

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 Thr Ala Thr Val Asp Asp Gly Cys Arg Ile Gly Ala Gly Thr Lys Ile  
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 Trp His Tyr Ser His Ile Met Thr Gly Cys Val Leu Gly Glu Arg Cys  
 35 40 45  
 Asn Ile Gly Gln Asn Val Val Ile Ser Pro Asp Val Val Leu Gly Asn  
 50 55 60  
 Asn Val Lys Val Gln Asn Asn Val Ser Val Tyr Thr Gly Val Thr Cys  
 65 70 75 80

Glu Asp Asp Val Phe Leu Gly Pro Ser Cys Val Phe Thr Asn Val Ile  
                     85                    90                    95  
 Asn Pro Arg Ser Ala Val Asn Arg Lys Ser Glu Tyr Ala Lys Thr Arg  
                     100                    105                    110  
 Val Gly Lys Gly Ala Thr Ile Gly Ala Asn Ala Thr Ile Val Cys Gly  
                     115                    120                    125  
 His Asp Ile Gly Glu Phe Ala Phe Ile Gly Ala Gly Ala Val Val Thr  
                     130                    135                    140  
 Lys Thr Val Pro Pro Tyr Ala Leu Leu Val Gly Asn Pro Ala Arg Gln  
 145                    150                    155                    160  
 Ile Gly Trp Met Ser Glu His Gly Tyr Arg Leu Glu Phe Asp Glu Arg  
                     165                    170                    175  
 Gly Ile Ala Glu Cys Leu Glu Ser Lys Glu Cys Tyr Gln Leu Arg Asp  
                     180                    185                    190  
 Gly Lys Val Phe Lys Met  
                     195

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 Thr Phe Pro Glu Asn Lys Thr Thr Thr Leu Phe Lys Asn Gly Glu Leu  
                     20                    25                    30  
 Ser Ile Phe Leu Leu Ile Arg Ile Ile Thr Leu Ile Tyr Pro Ser Ile  
                     35                    40                    45  
 Leu Asn Asp Lys Leu Pro Leu Lys Ser Pro Phe His Phe Pro Asn Ile  
                     50                    55                    60  
 Ile Leu Ser Trp His Leu Ala Tyr Leu Leu  
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 Asn Thr Asn Gly Arg Trp Ala Ala Glu Tyr Lys Asp Gly Val Phe Tyr  
                     20                    25                    30  
 His Tyr Glu Asn Gly Asp Thr Thr Lys Cys His Thr Asp Ser Ile Leu  
                     35                    40                    45  
 Asn Tyr Ile Ser Asp Ala Gly Glu Asn Trp Gln Met Lys Ile Glu Gly  
                     50                    55                    60  
 Asp His Phe Val His Ala Pro Asn Gly Asp Tyr Ser Arg Ala His Thr  
 65                    70                    75                    80  
 Asp Thr Val Met His Tyr Ile Gly Trp Asp Gly Arg Lys Trp Arg Ala  
                     85                    90                    95  
 Glu Leu Leu Thr Leu Ile Asp Gly Leu His Pro Asp Leu Ala Ser Asp  
                     100                    105                    110  
 Cys Pro Glu Gly Met Leu Leu Lys Ala Asp Asn Ala Asp Ala Val Tyr  
                     115                    120                    125  
 Leu Val Gln Phe Gly Ser Leu His His Ile Pro Asn Pro Asp Val Tyr  
                     130                    135                    140  
 Phe Ala Leu Phe Pro Ala Trp Asp Lys Ile Thr Val Lys Ser Gln Glu

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145 150 155 160  
 Glu Val Asn Ala Ile Pro Val Gly Ile Pro Leu Ser Leu Trp Met Leu  
 165 170 175  
 Val

<210> 5365  
 <211> 60  
 <212> PRT  
 <213> B.fragilis

<400> 5365  
 Ile Ser Ala Ser Leu Leu Leu His Pro Ile Thr Leu Val Gly Leu Thr  
 1 5 10 15  
 Ala Leu Ser Val Glu Thr Ile Thr Asn Phe Ser Thr Pro Tyr Leu Thr  
 20 25 30  
 Ala Lys Ser Ala Ile Ile Arg Val Pro Ser Thr Phe Thr Cys Met Ala  
 35 40 45  
 Ser Asp Thr Leu Ser Ser Ile Met Gly Thr Cys Leu  
 50 55 60

<210> 5366  
 <211> 446  
 <212> PRT  
 <213> B.fragilis

<400> 5366  
 Arg Trp Gln Ser Ile Gln Asn Val Ile Phe Asn Phe Lys Arg Pro Arg  
 1 5 10 15  
 Val Met Tyr Asn Lys Leu Val Asn Lys Glu Ala Lys Leu Ala Leu Val  
 20 25 30  
 Gly Leu Gly Tyr Val Gly Leu Pro Ile Ala Leu Glu Phe Ala Gln Lys  
 35 40 45  
 Ile Ser Val Ile Gly Phe Asp Ile Asn Glu Asp Arg Leu Ala Lys Met  
 50 55 60  
 Arg Glu Gly Ile Asp Pro Cys Gly Glu Leu Asp Ser Ser Ala Phe Glu  
 65 70 75 80  
 Asn Val Asp Ile Glu Phe Thr Ser Ser Ile Glu Lys Leu Lys Glu Ala  
 85 90 95  
 Ser Phe Phe Ile Val Ala Val Pro Thr Pro Ile Asp Lys Tyr Asn Lys  
 100 105 110  
 Pro Asp Leu Thr Pro Leu Leu Gly Ala Ser Arg Ser Val Ala Lys Ala  
 115 120 125  
 Leu Lys Pro Gly Asp Tyr Ile Val Tyr Glu Ser Thr Val Tyr Pro Gly  
 130 135 140  
 Cys Thr Glu Glu Asp Cys Leu Pro Val Leu Glu Glu Val Ser Gly Leu  
 145 150 155 160  
 Lys Ala Gly Ile Asp Phe Lys Tyr Gly Tyr Ser Pro Glu Arg Ile Asn  
 165 170 175  
 Pro Gly Glu Lys Val His Thr Leu Pro Asn Thr Ile Lys Ile Val Ser  
 180 185 190  
 Gly Cys Asp Pro Glu Ala Leu Asp Thr Val Ala Arg Val Tyr Glu Leu  
 195 200 205  
 Val Val Lys Pro Gly Val His Arg Ala Pro Asn Val Lys Val Ala Glu  
 210 215 220  
 Ala Ala Lys Ile Ile Glu Asn Thr Gln Arg Asp Val Asn Ile Ala Leu  
 225 230 235 240  
 Met Asn Glu Leu Ser Ile Ile Phe Ser Arg Ile Gly Ile Asn Thr Tyr  
 245 250 255

5365 5366 446 PRT B.fragilis

Asp	Val	Leu	Glu	Ala	Ala	Gly	Thr	Lys	Trp	Asn	Phe	Leu	Lys	Phe	Tyr
		260						265					270		
Pro	Gly	Leu	Val	Gly	Gly	His	Cys	Ile	Gly	Val	Asp	Pro	Tyr	Tyr	Leu
		275					280					285			
Val	Gln	Lys	Ala	Ser	Glu	Leu	Lys	Tyr	His	Cys	Gln	Ile	Ile	Ser	Ala
		290				295					300				
Gly	Arg	Tyr	Ile	Asn	Asp	Ser	Met	Gly	Gly	Tyr	Ile	Ala	Lys	Lys	Leu
305					310					315					320
Val	Lys	Arg	Leu	Ile	Ser	Leu	Gly	Lys	Gly	Val	Leu	Gly	Ala	Arg	Val
			325						330					335	
Leu	Val	Met	Gly	Val	Thr	Phe	Lys	Glu	Asn	Val	Ala	Asp	Ile	Arg	Asn
		340						345					350		
Ser	Lys	Val	Val	Asp	Ile	Val	Asn	Glu	Leu	Lys	Asp	Phe	Gly	Cys	Asp
		355					360					365			
Val	Asp	Val	Val	Asp	Pro	Tyr	Ala	Asp	Ser	Asp	Glu	Val	His	Arg	Glu
	370					375					380				
Tyr	Gly	Phe	Arg	Leu	Val	Glu	Lys	Pro	Arg	Asp	Asn	Tyr	Asp	Ala	Val
385					390					395					400
Ile	Val	Ala	Val	Ala	His	Asp	Glu	Tyr	Lys	Asn	Leu	Glu	Glu	Lys	Tyr
			405					410						415	
Phe	Lys	Asn	Met	Thr	Tyr	Asp	His	Ala	Val	Leu	Val	Asp	Ile	Lys	Gly
		420					425						430		
Met	Tyr	Arg	Asp	Arg	Ile	His	Lys	Leu	Lys	Tyr	Trp	Ser	Leu		
		435				440						445			

&lt;210&gt; 5367

&lt;211&gt; 370

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5367

Glu	Asp	Met	Gly	Lys	Lys	Arg	Val	Cys	His	Val	Thr	Ser	Val	His	Pro
1				5					10					15	
Ala	Asp	Asp	Ile	Arg	Ile	Leu	His	Lys	Glu	Cys	Val	Ser	Leu	Ser	Asn
			20					25					30		
Ala	Gly	Tyr	Glu	Val	Tyr	Leu	Val	Ala	Pro	Glu	Val	Ser	Asn	Gln	Leu
		35				40						45			
Lys	Asn	Gly	Ile	Gln	Ile	Ile	Gly	Val	Leu	Asn	Lys	Pro	Val	Ser	Arg
	50					55					60				
Phe	His	Arg	Ile	Leu	Phe	Tyr	Ile	Arg	Tyr	Val	Tyr	Lys	Lys	Ala	Leu
65				70					75						80
Trp	Val	Asn	Ala	Asp	Ile	Tyr	His	Leu	His	Asp	Pro	Glu	Leu	Leu	Leu
			85						90					95	
Tyr	Ala	Leu	Leu	Leu	Lys	Lys	Lys	Gly	Lys	Ile	Val	Ile	Phe	Asp	Ser
			100					105					110		
His	Glu	Asp	Ile	Pro	Arg	Gln	Ile	Leu	Ser	Lys	Glu	Trp	Ile	Pro	Phe
		115				120						125			
Phe	Ile	Arg	Lys	Phe	Ile	Ser	Phe	Ser	Tyr	Thr	Lys	Tyr	Glu	Lys	Phe
		130				135						140			
Ile	Leu	Lys	Gln	Leu	Asp	Ala	Ile	Val	Thr	Val	Asn	Gln	Asp	Ile	Ala
145					150					155					160
Ser	Arg	Leu	Val	Gln	Tyr	Asn	Lys	Arg	Thr	Tyr	Val	Val	Ser	Asn	Tyr
			165						170					175	
Pro	Val	Phe	Arg	Asn	Asn	Val	Glu	Arg	Ser	Ser	Val	Met	Glu	Arg	Thr
			180					185					190		
Ile	Gly	Phe	Ala	Gly	Asn	Ile	Lys	Gln	Glu	Tyr	Met	His	Glu	Asn	Ile
		195					200					205			
Leu	Ile	Ala	Leu	Thr	Asn	Leu	Gly	Asn	Val	Arg	Tyr	Leu	Leu	Ala	Gly
		210				215					220				

Asn Ala Glu Glu Gly Tyr Leu Lys Gln Leu Gln Thr Phe Lys Gly Trp  
 225 230 235 240  
 Asp Phe Val Asp Phe Tyr Gly Arg Ile Ser Lys Glu Lys Val Leu Leu  
 245 250 255  
 Leu Tyr Asp Lys Val Ala Ile Gly Met Ala Ile His Asp Tyr Thr Leu  
 260 265 270  
 Asn Val Gly Gly Lys Lys Gly Gly Leu Gly Phe Ile Lys Asn Phe Glu  
 275 280 285  
 Tyr Met Glu Ala Gly Ile Pro Leu Ile Cys Thr Asp Phe Asp Ile Trp  
 290 295 300  
 Lys Glu Ile Val Glu Glu Tyr Tyr Cys Gly Ile Cys Val Asn Pro His  
 305 310 315 320  
 Asp Val Asn Ser Ile Thr Gly Ala Ile Gln Tyr Leu Ile Asp Asn Pro  
 325 330 335  
 Val Ile Ala Arg Lys Met Gly Asp Asn Gly Arg Arg Ala Val Lys Glu  
 340 345 350  
 Lys Phe Asn Trp Glu Thr Gln Glu Glu Ile Leu Leu Gln Leu Tyr Asp  
 355 360 365  
 Ser Leu  
 370

<210> 5368  
 <211> 180  
 <212> PRT  
 <213> B.fragilis

<400> 5368  
 Cys Asp Phe Met Asn Asp Gly Glu Arg Lys Glu Thr Val Leu Ser Phe  
 1 5 10 15  
 Phe Tyr Arg Lys Ile Leu Lys Lys Ser Ser Pro Pro Tyr Tyr Cys Tyr  
 20 25 30  
 Tyr Ser Leu Leu Thr Ile Cys Ala Lys Pro Ile Arg Lys Trp Phe Ser  
 35 40 45  
 Val Val Val Ile Pro Ile Ile Pro Phe Ser Asn Leu Arg Val Gln Cys  
 50 55 60  
 Tyr Arg Trp Cys Gly Tyr Lys Ile Gly Arg His Thr Phe Ile Gly Met  
 65 70 75 80  
 Arg Cys Tyr Leu Asp Asp Met Cys Tyr Asp Leu Ile Glu Ile Gly Glu  
 85 90 95  
 Asn Val Thr Ile Ser Tyr Gly Val Phe Phe Ala Cys His Gly Arg Lys  
 100 105 110  
 Gln Gly His Asn Arg Ile Ile Ile Lys Asp Gly Ala Tyr Ile Gly Met  
 115 120 125  
 Asn Ser Ser Ile Ile Ser Arg Arg Glu Glu Gly Leu Ile Ile Gly Lys  
 130 135 140  
 Glu Ala Ile Val Gly Ala Cys Ser Leu Val Asn Arg Ser Val Pro Asp  
 145 150 155 160  
 Asn Lys Thr Val Val Gly Val Pro Ala Lys Glu Leu Asn Ala Val Leu  
 165 170 175  
 His Gly Asn Lys  
 180

<210> 5369  
 <211> 399  
 <212> PRT  
 <213> B.fragilis

<400> 5369  
 Lys Glu Ile Ile Ile Leu Trp Gln Asn Phe Leu Cys Gln Ser Ile Arg

1	5	10	15
Leu Ala Gly Asn Lys Val Thr Asp Ile Ile Met Lys Leu Gln Met Val			
20	25	30	
Asp Leu His Gly Gln Tyr Leu Asn Ile Lys Pro Glu Val Asp Ala Gly			
35	40	45	
Ile Arg Gln Val Ile Glu Thr Ser Ala Phe Ile Asn Gly Pro Gln Val			
50	55	60	
Lys Glu Phe Ala Glu Asn Leu Lys Ala Tyr Met Gly Ser Lys Tyr Val			
65	70	75	80
Ile Thr Cys Gly Asn Gly Thr Asp Ala Leu Gln Ile Ala Leu Met Ala			
85	90	95	
Leu Asp Leu Lys Pro Gly Asp Glu Val Ile Val Pro Ala Phe Thr Tyr			
100	105	110	
Val Ala Ser Ala Glu Val Ile Gly Leu Leu Gly Leu Ile Pro Val Met			
115	120	125	
Val Asp Val Asp Tyr Ala Thr Phe Asn Val Thr Val Ser Asn Leu Glu			
130	135	140	
Lys Ala Leu Ser Pro Lys Thr Lys Ala Ile Ile Pro Val His Leu Phe			
145	150	155	160
Gly Gln Ser Cys Asp Met Glu Pro Ile Met Gln Phe Ala Lys Gln His			
165	170	175	
Gly Ile Tyr Val Ile Glu Asp Asn Ala Gln Ala Ile Gly Ala Val Tyr			
180	185	190	
Thr Phe Ser Asp Gly Ser Lys Lys His Thr Gly Ala Ile Gly His Ile			
195	200	205	
Gly Cys Thr Ser Phe Phe Pro Ser Lys Asn Leu Gly Cys Tyr Gly Asp			
210	215	220	
Gly Gly Ala Ile Phe Thr Asp Asp Asp Glu Leu Ala Glu Arg Leu Arg			
225	230	235	240
Met Ile Ala Asn His Gly Gln Gln Val Lys Tyr His His Lys Val Ile			
245	250	255	
Gly Cys Asn Ser Arg Leu Asp Thr Leu Gln Ala Ala Ile Leu Asn Val			
260	265	270	
Lys Leu Lys His Leu Asp Glu Tyr Ser His Ala Arg His Glu Ala Ala			
275	280	285	
Gln Tyr Tyr Thr Phe Gln Leu Gln Gly Val Lys Gly Ile Ile Thr Pro			
290	295	300	
Glu Glu Leu Pro Leu Ser Thr His Val Tyr His Gln Tyr Thr Leu Lys			
305	310	315	320
Val Leu Asp Gly Lys Arg Asp Val Leu Lys Gln His Leu Ala Asp Ala			
325	330	335	
Gly Ile Pro Ser Met Ile Tyr Tyr Pro Leu Pro Leu Gln Gln Glu			
340	345	350	
Ala Phe Gln Thr Ile Ala Arg Ala Ala Glu Pro Leu Asp Thr Ala Glu			
355	360	365	
Lys Leu Ala Tyr Ser Val Leu Ser Leu Pro Ile His Thr Glu Leu Ser			
370	375	380	
Thr Glu Gln Gln Asp Leu Val Ile Asn Ser Ile Lys Asp Phe Phe			
385	390	395	

&lt;210&gt; 5370

&lt;211&gt; 373

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5370

Val Ile Thr Met Thr Glu Asp Lys Asn Ile Asn Lys Thr Thr Pro Gln
1 5 10 15
Ser Glu Glu Gln Glu Ile Asp Leu Ile Glu Leu Ala Gln Lys Val Trp

			20					25					30				
Ala	Gly	Arg	Lys	Leu	Val	Leu	Lys	Val	Cys	Gly	Val	Ala	Val	Leu	Val		
		35						40					45				
Gly	Leu	Val	Val	Ala	Phe	Ser	Ile	Pro	Lys	Glu	Tyr	Ser	Thr	Ser	Val		
	50					55					60						
Thr	Leu	Ala	Pro	Glu	Thr	Gly	Ser	Lys	Ser	Ser	Thr	Gly	Gly	Met	Gly		
65					70						75				80		
Ala	Leu	Ala	Ala	Met	Asp	Gly	Ile	Asn	Leu	Gly	Ser	Ser	Thr	Gly	Glu		
				85				90						95			
Asp	Ala	Leu	Ser	Pro	Glu	Leu	Tyr	Pro	Asp	Ile	Val	Ser	Ser	Thr	Pro		
			100					105					110				
Phe	Leu	Leu	Glu	Met	Phe	Asp	Val	Lys	Val	Ala	Asp	Gln	Lys	Gly	Lys		
		115					120					125					
Ile	Asn	Thr	Thr	Leu	Tyr	Glu	Tyr	Leu	Asp	Lys	Tyr	Gln	Arg	Ala	Pro		
	130					135					140						
Trp	Trp	Gly	Ala	Val	Ala	Ser	Ala	Pro	Phe	Lys	Ala	Leu	Gly	Trp	Val		
145					150					155					160		
Val	Ser	Leu	Phe	Lys	Asp	Ala	Pro	Glu	Glu	Gln	Gly	Asp	Ala	Lys	Ile		
				165				170						175			
Asp	Pro	Phe	Tyr	Leu	Thr	Ala	Asp	Gln	Ala	Gly	Ile	Ala	Asp	Ala	Leu		
		180					185						190				
Ser	His	Arg	Ile	Ser	Val	Ser	Val	Asp	Lys	Lys	Thr	Gly	Val	Thr	Thr		
		195					200					205					
Leu	Thr	Val	Thr	Met	Gln	Asp	Pro	Leu	Ile	Ser	Ala	Ala	Leu	Thr	Asp		
	210					215					220						
Thr	Val	Met	His	Cys	Leu	Gln	Asn	Tyr	Ile	Thr	Asp	Tyr	Arg	Thr	Asn		
225					230					235					240		
Lys	Ala	Arg	His	Asp	Leu	Ala	Phe	Thr	Glu	Lys	Leu	Phe	Asn	Glu	Ala		
				245				250						255			
Gln	Glu	Asn	Tyr	Tyr	Glu	Ala	Gln	Gln	Lys	Tyr	Ala	Arg	Phe	Met	Asp		
			260				265						270				
Gly	Asn	Gln	Asn	Ile	Ile	Met	Gln	Ser	Phe	Arg	Thr	Glu	Gln	Glu	Arg		
		275					280					285					
Leu	Gln	Asn	Glu	Met	Asn	Leu	Ala	Tyr	Gly	Val	Phe	Thr	Gln	Val	Ser		
	290					295					300						
Gln	Gln	Leu	Gln	Leu	Ala	Lys	Ala	Lys	Val	Gln	Glu	Ile	Thr	Pro	Val		
305					310					315					320		
Tyr	Thr	Val	Val	Gln	Pro	Ala	Thr	Val	Pro	Leu	Arg	Pro	Ala	Lys	Pro		
				325					330					335			
Asn	Lys	Ile	Met	Ile	Leu	Ile	Gly	Phe	Val	Phe	Leu	Ala	Gly	Val	Gly		
			340					345					350				
Ser	Ile	Gly	Trp	Ile	Leu	Phe	Val	Lys	Asp	Leu	Leu	Asn	Gly	Trp	Lys		
		355					360					365					
Lys	Gln	Pro	Glu	Lys													
	370																

<210> 5371  
 <211> 226  
 <212> PRT  
 <213> B.fragilis

<400> 5371  
 Phe Cys Ala Ile Ile Leu Arg Met Met Asn Met Lys Pro Ile Ile Ser  
 1 5 10 15  
 Pro Ser Ile Leu Ser Ala Asp Phe Ala Tyr Leu Ala Lys Asp Ile Glu  
 20 25 30  
 Met Ile Asn Arg Ser Glu Ala Asp Trp Val His Ile Asp Ile Met Asp  
 35 40 45  
 Gly Val Phe Val Pro Asn Ile Ser Phe Gly Phe Pro Val Leu Lys Tyr

50		55		60
Val Ala Lys Leu Thr Ser	Lys Pro Leu Asp	Val His Leu Met Ile Val		
65	70	75	80	
Asn Pro Glu Lys Phe	Ile Pro Glu Val Lys	Ala Leu Gly Ala His Ile		
	85	90	95	
Met Asn Val His Tyr	Glu Ala Cys Pro His	Leu His Arg Val Val Gln		
	100	105	110	
Leu Ile Arg Glu Ala	Gly Met Gln Pro Ala	Val Thr Ile Asn Pro Ala		
	115	120	125	
Thr Pro Ile Thr Leu	Leu Gln Asp Ile Ile	Arg Asp Val Tyr Met Val		
	130	135	140	
Leu Val Met Ser Val	Asn Pro Gly Phe Gly	Gly Gln Lys Phe Ile Glu		
145	150	155	160	
His Ser Val Glu Lys	Val Lys Glu Leu Arg	Glu Leu Ile Glu Arg Thr		
	165	170	175	
Gly Ser Lys Ala Leu	Ile Glu Val Asp Gly	Gly Val Asn Leu Glu Thr		
	180	185	190	
Gly Ala Arg Leu Ile	Ala Ala Gly Ala Asp	Ala Leu Val Ala Gly Asn		
	195	200	205	
Ala Ile Phe Ala Ala	Glu Asn Pro Glu Gly	Met Ile His Ala Met Lys		
	210	215	220	
Gly Leu				
225				

&lt;210&gt; 5372

&lt;211&gt; 348

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5372

Ile Phe Tyr Met Asn	Lys Lys Arg Lys	Lys Ile Phe Leu Ser	Ile Leu
1	5	10	15
Ala Thr Phe Phe Phe	Ile Cys Ile Ala	Gly Ala Gly Thr	Val Tyr Tyr
	20	25	30
Tyr Leu Phe Tyr Pro	Gln Phe His Pro	Ser Lys Thr Thr	Tyr Ile Tyr
	35	40	45
Ile Asp Arg Asp Asp	Thr Thr Asp Ser	Ile Phe Asn Lys	Ile Lys Lys
	50	55	60
Gln Gly Asn Pro His	Ser Phe Asn Gly	Phe Lys Trp Met	Ser His Phe
65	70	75	80
Arg Glu Tyr Ser Lys	Asn Ile His Thr	Gly Arg Tyr Ala	Ile Lys Pro
	85	90	95
Gly Asp Ser Thr Tyr	Gln Leu Tyr Ser	Arg Leu Ser Arg	Gly Tyr Gln
	100	105	110
Thr Pro Val Asn Leu	Thr Ile Gly Ser	Val Arg Thr Leu	Asp Arg Leu
	115	120	125
Val Arg Ser Val Gly	Lys Gln Leu Met	Ile Asp Ser Ala	Glu Ile Ala
	130	135	140
Met Ala Leu Tyr Asp	Ser Ile Phe Leu	Glu Lys Met Gly	Tyr Thr Glu
145	150	155	160
Ala Thr Ile Pro Cys	Leu Phe Ile Pro	Glu Thr Tyr Gln	Val Tyr Trp
	165	170	175
Asp Val Ser Ala Ala	Asp Phe Leu Ala	Arg Met Lys Lys	Glu His Asp
	180	185	190
Lys Phe Trp Asn Lys	Asp Arg Leu Ser	Lys Ala Gln Ala	Ile Gly Met
	195	200	205
Thr Pro Glu Glu Ile	Cys Thr Leu Ala	Ser Ile Val Glu	Glu Glu Thr
	210	215	220
Asn Asn Asn Ala Glu	Lys Pro Met Val	Ala Gly Leu Tyr	Ile Asn Arg

225                      230                      235                      240  
 Leu His Ala Gly Met Pro Leu Gln Ala Asp Pro Thr Ile Lys Phe Ala  
                                  245                      250                      255  
 Leu Gln Asp Phe Gly Leu Arg Arg Ile Thr Asn Gln His Leu Asp Val  
                                  260                      265                      270  
 Gln Ser Pro Tyr Asn Thr Tyr Leu Asn Ala Gly Leu Pro Pro Gly Pro  
                                  275                      280                      285  
 Ile Arg Ile Pro Ser Pro Lys Gly Leu Asp Ser Val Leu Asn Tyr Val  
                                  290                      295                      300  
 Lys His Asn Tyr Ile Tyr Met Cys Ala Lys Glu Asp Phe Ser Gly Thr  
 305                                   310                      315                      320  
 His Asn Phe Ala Ser Asn Tyr Ala Asp His Met Val Asn Ala Arg Lys  
                                  325                      330                      335  
 Tyr Trp Lys Ala Leu Asn Glu Arg Lys Ile Phe Lys  
                                  340                      345

&lt;210&gt; 5373

&lt;211&gt; 296

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5373

Ile Phe Asn Ile Met Lys Asn Lys Arg Lys Arg Pro Ser Lys Lys Gln  
 1                      5                      10                      15  
 His His Asn Ser Phe Lys Ser Phe Trp Ile Ile Ala Leu Phe Ala Ile  
                                  20                      25                      30  
 Leu Pro Leu Ile Tyr Gly Val Tyr Leu Cys Thr Pro Glu Ile Gln Ala  
                                  35                      40                      45  
 Val Phe Phe Gln Ala Thr Lys Val Ser Arg Pro Asn Val Ala Arg Pro  
                                  50                      55                      60  
 Asn Tyr Ser His Asp Glu Asn Leu Lys Ile Pro Val Ser Gln Phe Pro  
 65                                   70                      75                      80  
 Leu Thr Glu Gln Ile Ile His His Lys Gly Tyr Thr Val Ser Tyr Asn  
                                  85                      90                      95  
 Lys Asp Lys Lys Ile Pro Asn Trp Val Ala Tyr Glu Leu Thr Lys Gln  
                                  100                      105                      110  
 Lys Thr Gln Gly Asn Ile Lys Arg Asn Glu Arg Phe Ile Ala Asp Pro  
                                  115                      120                      125  
 Val Val Lys Gly Gly Met Ala Asn Asn Ser Asp Tyr Ser Arg Ser Gly  
                                  130                      135                      140  
 Phe Asp Lys Gly His Met Ala Pro Ala Ala Asp Met Lys Trp Ser Asn  
 145                                   150                      155                      160  
 Glu Ala Met Lys Glu Ser Phe Tyr Phe Ser Asn Val Cys Pro Gln His  
                                  165                      170                      175  
 Pro Glu Leu Asn Arg Arg Lys Trp Lys Thr Leu Glu Asp Lys Val Arg  
                                  180                      185                      190  
 Glu Trp Ala Val Ala Asp Ser Ala Ile Leu Ile Ile Cys Gly Pro Val  
                                  195                      200                      205  
 Thr Asn Lys Lys Ser Pro Val Ile Gly Lys Ser Arg Val Thr Val Pro  
                                  210                      215                      220  
 Ser Lys Phe Phe Lys Val Ile Leu Ser Leu His Gly Ser Thr Pro Lys  
 225                                   230                      235                      240  
 Ala Ile Gly Phe Ile Phe Lys Asn Glu Arg Ala Ile Ala Pro Leu Arg  
                                  245                      250                      255  
 Asn Tyr Ala Val Ser Ile Asp Ser Ile Glu Gln Leu Thr Gly Leu Asp  
                                  260                      265                      270  
 Phe Phe Ser Ser Leu Pro Asp Ser Leu Glu Asn Glu Ile Glu Ser Arg  
                                  275                      280                      285  
 Ile Asp Thr Thr Leu Trp Ser Ile

5373  
 296  
 PRT  
 B.fragilis  
 5373





405

410

<210> 5375  
 <211> 333  
 <212> PRT  
 <213> B.fragilis

<400> 5375

Asn	Tyr	Tyr	Ile	Cys	Asn	Gln	Thr	Lys	Lys	Thr	Leu	Ile	Met	Pro	Asn
1				5					10					15	
Phe	Phe	Lys	Ser	Phe	Phe	Ala	Gly	Lys	Thr	Glu	Asn	Pro	Glu	Glu	Glu
			20					25					30		
Lys	Gln	Lys	Asn	Ala	Lys	Lys	Asn	Phe	Glu	Ile	Phe	Lys	Tyr	Asp	Gly
		35					40					45			
Leu	Arg	Ala	Gln	Arg	Met	Gly	Arg	Pro	Asp	Tyr	Ala	Ile	Lys	Cys	Phe
	50					55					60				
Asn	Glu	Ala	Leu	Ala	Ile	Glu	Glu	Asp	Phe	Glu	Thr	Leu	Asn	Tyr	Leu
65					70				75					80	
Ser	Gln	Leu	Tyr	Ile	Gln	Thr	Gly	Glu	Phe	Gly	Lys	Ala	His	Glu	Leu
				85				90						95	
Leu	Glu	Arg	Met	Ile	Ala	Leu	Glu	Pro	Glu	Leu	Thr	Ser	Thr	Tyr	Leu
			100					105						110	
Thr	Leu	Ala	Asn	Leu	Cys	Phe	Met	Gln	Glu	Asp	Tyr	Gln	Glu	Met	Ala
		115					120						125		
Asp	Ala	Ala	Gln	Lys	Ala	Ile	Ala	Leu	Glu	Glu	Gly	Asn	Ala	Met	Ala
		130				135					140				
His	Tyr	Leu	Leu	Gly	Lys	Ala	Asn	His	Gly	Leu	Asp	Asn	Gly	Ile	Met
145					150				155					160	
Thr	Ile	Ala	His	Leu	Thr	Lys	Ala	Ile	Val	Leu	Lys	Asp	Asp	Phe	Thr
				165					170					175	
Glu	Ala	Arg	Leu	Leu	Arg	Ala	Glu	Ala	Leu	Tyr	Lys	Met	Gln	Gln	Phe
			180					185					190		
Ala	Glu	Ala	Met	Glu	Asp	Ile	Glu	Ala	Ile	Leu	Thr	Gln	Asn	Pro	Asp
		195					200					205			
Glu	Glu	Ala	Ala	Leu	Leu	Leu	Arg	Gly	Lys	Ile	Lys	Glu	Ala	Thr	Gly
	210					215					220				
Lys	Glu	Glu	Glu	Ala	Glu	Thr	Asp	Tyr	Leu	His	Val	Thr	Glu	Ile	Asn
225					230					235				240	
Pro	Phe	Asn	Glu	Gln	Ala	Tyr	Leu	Tyr	Leu	Gly	Gln	Leu	Phe	Ile	Thr
				245					250					255	
Gln	Lys	Lys	Leu	Thr	Ala	Ala	Ile	Glu	Leu	Phe	Asp	Glu	Ala	Ile	Glu
			260					265					270		
Leu	Asn	Pro	Asn	Phe	Gly	Ala	Ala	Tyr	His	Glu	Arg	Gly	Arg	Ala	Lys
		275					280					285			
Leu	Leu	Asn	Gly	Asp	Lys	Asp	Gly	Ser	Ile	Glu	Asp	Met	Lys	Lys	Ser
	290					295					300				
Leu	Glu	Leu	Asn	Pro	Lys	Glu	Gly	Glu	Asn	Leu	Asn	Gly	Gln	Phe	Asn
305					310					315				320	
Asn	Gln	Gln	Ala	Glu	Thr	Thr	Pro	Asn	Val	Leu	Gly	Leu			
				325					330						

<210> 5376  
 <211> 269  
 <212> PRT  
 <213> B.fragilis

<400> 5376

Tyr	Ile	Tyr	Ile	Ile	Val	Met	Ile	Phe	Tyr	Phe	Ser	Gly	Thr	Gly	Asn
1				5					10					15	

Ser Lys Trp Ile Ala Glu Gln Ile Ala Lys Ala Gln Asn Glu Val Leu  
 20 25 30  
 Val Phe Met Pro Asn Ala Ile Arg Asp Gly Ile Glu Glu Phe Val Leu  
 35 40 45  
 Ala Asp Asp Glu Lys Val Gly Phe Val Phe Pro Val Tyr Ser Trp Gly  
 50 55 60  
 Pro Pro Leu Ser Val Leu Arg Phe Leu Asp Trp Ile Thr Leu Ser Asn  
 65 70 75 80  
 Tyr His Ser Gln Tyr Val Phe Phe Val Cys Ser Cys Gly Asp Asp Thr  
 85 90 95  
 Gly Leu Thr Glu Glu Leu Phe Arg Arg Ala Leu Ser Arg Lys Gly Met  
 100 105 110  
 Glu Cys Asn Ala Gly Phe Ser Val Ala Met Pro Asn Asn Tyr Val Leu  
 115 120 125  
 Leu Pro Gly Phe Asp Val Asp Lys Lys Glu Leu Glu Lys Lys Lys Leu  
 130 135 140  
 Asp Glu Ala Val Gly Arg Val Glu Glu Ile Asn Asp Ser Ile Thr Gly  
 145 150 155 160  
 Lys Lys Ile Gly Phe His Cys Asn Glu Gly Ser Phe Pro Trp Phe Lys  
 165 170 175  
 Thr Lys Val Leu Asn Pro Leu Phe Asn Arg Phe Met Thr Ser Ala Lys  
 180 185 190  
 Pro Phe Tyr Ala Thr Asp Asp Cys Ile Gly Cys Lys Arg Cys Glu Arg  
 195 200 205  
 Ile Cys Pro Val Gly Asn Val Val Met Ile Gly Trp Arg Pro Val Trp  
 210 215 220  
 Gly Met Asp Cys Thr Ser Cys Leu Ala Cys Tyr His Val Cys Pro Lys  
 225 230 235 240  
 His Ala Val Gln Tyr Gly Arg Arg Thr Lys Arg Lys Gly Gln Tyr Leu  
 245 250 255  
 Asn Pro Asn Val Ser Ile Ser His Glu Ala Ala Ala Gln  
 260 265

<210> 5377

<211> 724

<212> PRT

<213> B.fragilis

<400> 5377

Tyr Met Ile Ile Lys Ser Val Thr Ile Asn Asn Phe Arg Ser Tyr Tyr  
 1 5 10 15  
 Arg Glu Asn Thr Phe Glu Phe Ser Lys Gly Leu Thr Leu Ile Ile Gly  
 20 25 30  
 Gly Asn Gly Asp Gly Lys Thr Thr Phe Phe Glu Ala Leu Glu Trp Leu  
 35 40 45  
 Leu Asp Thr Ala His Glu Thr Lys Asp Pro Ser Leu Ile Ser Glu Met  
 50 55 60  
 Arg Lys Ser Glu Leu Asp Glu Asp Glu Ala Asp Thr Met Ser Val Ser  
 65 70 75 80  
 Met Phe Phe Glu His Asn Gly Glu Lys Glu Val Ser Lys Ser Leu Thr  
 85 90 95  
 Phe Glu Lys Arg Asn Gly Val Cys Gln Val Thr Asn Phe Ala Phe Lys  
 100 105 110  
 Gly Tyr Glu Thr Asn Gly Ala Glu Arg Met Gln Arg Lys Gly Ser Ser  
 115 120 125  
 Leu Ile Asp Val Cys Phe Asp Ala Phe Ile Arg Lys Tyr Cys Leu Phe  
 130 135 140  
 Lys Gly Glu Ser Gln Leu Asn Val Phe Asn Glu Lys Glu Ala Leu Arg  
 145 150 155 160

Thr Leu Val Asp Lys Phe Ser Asp Ile Arg Lys Phe Glu Asp Tyr Val  
 165 170 175  
 Ala Val Ala Thr Glu Leu Glu Ala Lys Ser Asp Arg Ala Tyr Ala Lys  
 180 185 190  
 Glu Cys Gln Ser Asp Lys Lys Ile Ser Gln Arg Val Ser Glu Leu Gln  
 195 200 205  
 Cys Lys Lys Glu His Leu Gly Gln Gln Ile Asp Glu Ile Lys Cys Asp  
 210 215 220  
 Ile Arg Lys Gln Glu Asp Val Val Ser Thr Tyr Ser Val Lys Leu Glu  
 225 230 235 240  
 Asp Leu Glu Lys His Gln Val Thr Ser Glu Ser Tyr Gln Asp Ile Lys  
 245 250 255  
 Lys Arg Ile Asp Thr Gln Arg Glu Lys Leu Ala Lys Leu Arg Ser Met  
 260 265 270  
 Thr Met Val Arg Tyr Asn Thr Asn Leu Leu Asp Glu Phe Trp Ala Leu  
 275 280 285  
 Met Pro Tyr Gln Asn Val Phe Glu Glu Phe Gln Lys Lys Val Ser Ala  
 290 295 300  
 Leu Ser Lys Glu Lys Arg Arg Leu Ser Asp Leu Asp Ile Gln Glu Lys  
 305 310 315 320  
 Ala Ala Ala Lys Ala Lys Lys Glu Val Val Asp Glu Leu Thr Ser Ser  
 325 330 335  
 Leu Gln Ser Asp Phe Thr Arg Leu Pro Trp Tyr Leu Pro Asp Gly Glu  
 340 345 350  
 Thr Met Gln Glu Met Leu Asp Glu Glu Val Cys Lys Val Cys Gly Arg  
 355 360 365  
 Pro Ala Lys Lys Gly Thr Pro Glu Tyr Arg Phe Met Glu Asn Lys Leu  
 370 375 380  
 Arg Glu Tyr Leu Glu His Lys Ser Gln Glu Leu Ala Ala Lys Gln Glu  
 385 390 395 400  
 Glu Leu Pro Asp Thr Pro Leu Phe Gly Thr Gln Tyr Ile Glu Glu Leu  
 405 410 415  
 His Ser Leu Ser Ile Ser Phe Gly Gly Met Thr Ala Arg Asp Ile Ser  
 420 425 430  
 Lys Lys Tyr Arg Glu Val Val Asp Lys Leu Glu Leu Val Ala Arg Ile  
 435 440 445  
 Lys Arg Asp Ile Ala Glu Lys Glu Ala Glu Leu Leu Glu Leu Glu Asp  
 450 455 460  
 Glu Lys Ser Arg Leu Leu Ile Gln Ala Asp Gly Leu Thr Glu Ala Met  
 465 470 475 480  
 Leu Asp Lys Asn Phe Arg Asp Ile Lys Gly Phe Tyr Glu Gln Arg Asp  
 485 490 495  
 Arg Ala Lys Asn Arg Ile Ser Asp Tyr Arg Glu Arg Leu Val Lys Val  
 500 505 510  
 Gln Met Glu Tyr Asp Lys Val Lys Glu Glu Phe Glu Gln Leu Asn Pro  
 515 520 525  
 Thr Thr Gly Met Ala Lys Val Tyr Asn Arg Val His Thr Leu Leu Asp  
 530 535 540  
 Lys Val Met Arg Ala Phe Val Asn Ala Lys Ser Glu Asn Leu Arg Arg  
 545 550 555 560  
 Phe Leu Ala Ser Leu Glu Glu Arg Thr Asn Ser Tyr Phe Glu Lys Leu  
 565 570 575  
 Asn Lys Asn Asp Phe Arg Gly Val Ile Arg Ile Val Gln Thr Ala Ser  
 580 585 590  
 Asp Ser Ala Glu Ile Lys Leu Phe Ser Ser Asn Gly Thr Pro Ile Lys  
 595 600 605  
 Asn Pro Gly Gly Ala Gln Glu Thr Thr Met Tyr Met Ser Leu Leu Phe  
 610 615 620  
 Ala Ile Ser Asp Leu Thr Thr Leu Lys Arg Glu Glu Asp Tyr Pro Leu

625		630		635		640
Ile Phe Asp Ala Pro Thr Ser Ser Phe Glu Asn Phe Lys Glu Asn Val						
		645		650		655
Phe Tyr Asn Ile Ile Asp Lys Ile Gln Lys Gln Cys Ile Ile Val Thr						
		660		665		670
Lys Asp Leu Leu Glu Val Asp Lys Leu Thr Gly Lys Lys Thr Leu Asn						
		675		680		685
Glu Ala Gln Ile Glu Ala Leu Thr Cys Ser Val Tyr Arg Ile Glu Lys						
		690		695		700
Gln Thr Gly Tyr Asn Glu Thr Asp Leu Ser Thr Ile Arg Thr Ile Ile						
705		710		715		720
Thr Pro Ile Lys						

<210> 5378  
 <211> 156  
 <212> PRT  
 <213> B.fragilis

<400> 5378	
Phe Cys Pro Ile Ile Thr Lys Val Lys Arg Lys Gln Met Glu Glu Ile	
1	15
Glu Phe His His Ser Leu Pro Ile Gln Leu Arg Phe Asn Asp Val Asp	
20	30
Lys Phe Gly His Val Asn Asn Thr Val Tyr Phe Ser Phe Tyr Asp Leu	
35	45
Gly Lys Thr Glu Tyr Phe Ala Ser Val Cys Pro Gly Val Asp Trp Glu	
50	60
Lys Asp Gly Ile Val Val Val His Ile Glu Ala Asp Phe Leu Ala Gln	
65	80
Ile Phe Ser Ser Asp His Ile Ala Val Gln Thr Ala Val Cys Glu Ile	
85	95
Gly Thr Lys Ser Phe His Leu Leu Gln Arg Val Ile Asp Thr Glu Thr	
100	110
Met Glu Val Lys Cys Ile Cys Arg Ser Val Met Val Thr Phe Asp Leu	
115	125
Glu Arg His Glu Ser Lys Pro Leu Thr Glu Glu Trp Ile Glu Ala Ile	
130	140
Cys Arg Phe Glu Gly Arg Asp Leu Arg Lys Lys Lys	
145	155

<210> 5379  
 <211> 71  
 <212> PRT  
 <213> B.fragilis

<400> 5379	
Arg Lys Pro Ile Asn Asn Gln Ile Val Ile Asn Phe Tyr Phe Trp Leu	
1	15
Leu Val Glu Lys Ala Ser Ile Met Gly His Val Leu Leu Arg Leu Pro	
20	30
Leu Leu Ile Arg Tyr Leu Ala Ser Thr Asp Ile Ser Arg Ser Ile Asn	
35	45
Asp Tyr Phe Ser Met Leu Cys Val Thr Phe His Asn Phe Lys Lys Leu	
50	60
Asn Ile Tyr Leu Val Cys Asn	
65	70

<210> 5380

<211> 174  
 <212> PRT  
 <213> B.fragilis

<400> 5380

Arg	Val	Gly	Met	Cys	Phe	Gly	Tyr	Ser	Leu	Asn	Gly	Leu	Cys	Ser	Phe
1			5						10					15	
Lys	Arg	Gly	Ile	Met	Lys	Leu	Ile	Thr	Glu	Gly	Leu	Leu	Asp	Lys	Val
		20						25					30		
Thr	Asp	Gln	Ala	Lys	Glu	Asn	Ser	Arg	Leu	Arg	Met	Asn	Tyr	Asn	Phe
		35					40					45			
His	Asp	Ser	Met	Asp	Ala	Pro	Ile	His	Arg	Met	Leu	Asn	Ala	Leu	Glu
	50						55				60				
Pro	Gly	Thr	Tyr	Leu	Pro	Pro	His	Arg	His	Lys	Asn	Pro	Asp	Lys	Glu
65					70					75					80
Glu	Val	Tyr	Leu	Val	Leu	Arg	Gly	Ser	Leu	Leu	Ala	Ile	Leu	Phe	Asp
			85						90					95	
Asp	Glu	Gly	Asn	Val	Thr	Glu	Lys	Val	His	Leu	Asn	Pro	Ala	Glu	Gly
			100					105					110		
His	Tyr	Gly	Ile	Glu	Ile	Pro	Pro	Cys	Val	Trp	His	Thr	Ile	Val	Val
		115					120					125			
Leu	Glu	Ser	Gly	Thr	Val	Ile	Tyr	Glu	Ile	Lys	Gln	Gly	Pro	Phe	Ala
	130					135					140				
Pro	Leu	Ile	Pro	Glu	Asn	Leu	Ala	Ser	Trp	Ala	Pro	Pro	Ala	Thr	Asp
145					150					155					160
Glu	Glu	Ala	Ala	Arg	Val	Phe	Met	Gln	Arg	Met	Leu	Glu	Leu		
			165					170							

<210> 5381  
 <211> 325  
 <212> PRT  
 <213> B.fragilis

<400> 5381

Ser	Arg	Leu	Val	Asn	Phe	Gln	Tyr	Leu	His	Arg	Tyr	Pro	Phe	Ile	Arg
1			5						10					15	
Leu	Leu	Phe	Pro	Leu	Ile	Ala	Gly	Phe	Leu	Val	Gly	Asn	Gly	Leu	Phe
		20						25					30		
Phe	Arg	Gly	Val	Cys	Val	Ser	Lys	Gly	Val	Leu	Ala	Gly	Gly	Leu	Ala
		35					40					45			
Gly	Leu	Phe	Leu	Leu	Leu	Leu	Val	Val	Tyr	Phe	Ser	His	Arg	Tyr	Ser
	50					55					60				
Leu	Arg	Trp	Met	Phe	Gly	Cys	Ile	Leu	Tyr	Leu	Phe	Val	Phe	Phe	Gly
65					70					75					80
Gly	Ala	Gly	Gly	Ile	Asn	Gln	Ala	Leu	Gln	Gln	Thr	Leu	Tyr	Ser	Phe
			85						90					95	
Ser	Glu	Gln	Lys	Cys	Val	Tyr	Arg	Ala	Val	Val	Leu	Glu	Gln	Pro	Glu
			100					105					110		
Pro	Lys	Glu	His	Ser	Phe	Leu	Cys	Arg	Ala	Phe	Leu	Glu	Glu	Arg	Gln
		115					120					125			
Asp	Ser	Val	Cys	Thr	Met	Pro	Val	Asn	Arg	Lys	Val	Leu	Leu	Tyr	Ile
	130					135					140				
Ser	Lys	Asp	Ser	Leu	Ser	Glu	Gly	Leu	Arg	Ser	Gly	Asp	Glu	Leu	Ile
145					150					155					160
Phe	Phe	Ala	His	Val	Ser	Pro	Pro	Ser	Asn	Asn	Gly	Asn	Pro	Asp	Glu
			165						170					175	
Phe	Asp	Tyr	Ala	Arg	Tyr	Leu	Arg	Tyr	Lys	Gly	Ile	Ser	Gly	Ile	Ala
		180						185					190		
Phe	Val	Ala	Ser	Gly	Asn	Trp	Lys	Ile	Thr	Gly	Tyr	Arg	Phe	Ser	Arg

[illegible]

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<400> 5382
Leu Ile Ile Val Leu Thr Met Ala His Tyr Asn Asn Asn Ser Asn Arg
1      5      10      15
Ile Leu Gln Ala Val Leu Ala Asp Glu Lys Leu Ile Glu Phe Gly Glu
20      25      30
Tyr Asn Pro Ala Asp Tyr Gln Ser Leu Asp Glu Ala Leu Val Ser Asp
35      40      45
Asn Leu Val Val Asn Thr Val Ala Arg Ile Ile Asn Glu Val Asn Glu
50      55      60
Glu Ser Ser Ser Arg Glu Ile Tyr Asn Met Val Thr Thr Tyr Leu Lys
65      70      75      80
Asn Asn Ile

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<400>	5383														
Lys	Met	Asn	Val	Asn	Ile	Thr	Ala	Val	Leu	Leu	Lys	Ser	Leu	Phe	Asp
1				5					10					15	
His	Ile	Val	Ala	Phe	Leu	Gly	Leu	Leu	Phe	Leu	Ser	Pro	Ile	Leu	Leu
			20					25					30		
Val	Thr	Ala	Ile	Leu	Ile	Arg	Val	Lys	Met	Pro	Gly	Gly	Pro	Val	Ile
			35				40					45			
Phe	Lys	Gln	Lys	Arg	Val	Gly	Arg	Tyr	Gly	Arg	Leu	Phe	Thr	Met	Tyr
	50					55					60				
Lys	Phe	Arg	Ser	Met	Thr	Val	Gly	His	Ser	Gly	Gly	Ser	Val	Ser	Val
65				70					75					80	
Lys	Gly	Glu	Ser	Arg	Ile	Thr	Pro	Leu	Gly	Ala	Lys	Leu	Arg	Lys	Tyr
				85					90					95	
Lys	Ile	Asp	Glu	Leu	Pro	Glu	Leu	Trp	Asn	Val	Leu	Ile	Gly	Asp	Met
			100					105					110		
Ser	Leu	Val	Gly	Pro	Arg	Pro	Asp	Val	Pro	Gly	Tyr	Ala	Asp	Asn	Leu
			115				120					125			

Leu Gly Asp Asp Arg Arg Met Leu Leu Leu Lys Pro Gly Ile Thr Gly  
 130 135 140  
 Pro Ala Ser Leu Lys Tyr Arg Asn Glu Glu Glu Leu Leu Ala Gly Gln  
 145 150 155 160  
 Asp Asn Pro Gln Lys Tyr Asn Asp Glu Val Leu Phe Pro Asp Lys Val  
 165 170 175  
 Arg Ile Asn Ile Glu Tyr Leu Asp Asn Trp Ser Phe Trp Asn Asp Ile  
 180 185 190  
 Lys Ile Ile Val Tyr Thr Val Phe Gly Lys Asp Met  
 195 200

<210> 5384

<211> 308

<212> PRT

<213> B.fragilis

<400> 5384

Glu Pro Ile Val Glu Arg Trp Gln Gly Ala His Tyr Gly Thr Tyr Asn  
 1 5 10 15  
 Asp Gln Gln Asp His Arg Leu Leu Gln Leu Gln Ala Glu Val Ser Leu  
 20 25 30  
 Ala Leu Trp Asp Ala Lys Ala Lys Arg Ala Lys Gly Lys Ser Asp Glu  
 35 40 45  
 Ala Arg Arg Leu Asn Gln Glu Leu Asp Asn Val Lys Ala Gln Ile Thr  
 50 55 60  
 Arg His Tyr Gln Tyr Val Cys Asp His Asp Ser Leu Val Thr Ala Lys  
 65 70 75 80  
 Ser Val Tyr Asn Arg Tyr Leu Gly Phe Gly Asp Asp Tyr His Thr Leu  
 85 90 95  
 Met Gly Leu Phe Arg Glu Gln Leu Ala Ser Tyr Lys Glu Lys Ile Gly  
 100 105 110  
 Lys Glu Lys Ala Ala Ser Thr Tyr Arg Gly Leu Val Ala Asp Tyr Lys  
 115 120 125  
 Asn Leu Gln Leu Phe Leu Lys Glu Lys Arg Arg Ile Glu Asp Ile Ala  
 130 135 140  
 Ile Ala Glu Leu Asp Lys Lys Phe Ile Glu Asp Tyr Tyr Asn Trp Met  
 145 150 155 160  
 Leu Gly Thr Cys Ala Leu Ala Ser Ser Thr Ala Phe Gly Arg Gly Asn  
 165 170 175  
 Thr Leu Lys Trp Leu Met Tyr Thr Ala Gln Glu Arg Gly Trp Ile Arg  
 180 185 190  
 Leu His Pro Phe Ile Gly Phe Asp Cys Leu Ser Glu Tyr Lys Trp Arg  
 195 200 205  
 Ser Phe Leu Thr Glu Glu Asp Leu Gln Ser Val Ile His Val Lys Leu  
 210 215 220  
 Asn Tyr Lys Arg Gln Arg Ala Ile Arg Asp Met Phe Leu Phe Met Cys  
 225 230 235 240  
 Phe Thr Gly Leu Ala Tyr Ala Asp Leu Lys Glu Ile Thr Tyr Lys Asn  
 245 250 255  
 Ile His Thr Asp Ser Glu Gly Gly Thr Trp Leu Ile Gly Asn Arg Ile  
 260 265 270  
 Lys Thr Asp Val Ala Tyr Val Val Lys Leu Leu Pro Ile Thr Ile Glu  
 275 280 285  
 Leu Val Glu Arg Tyr Arg Gly Thr Met Lys Arg Lys Val Arg Leu Thr  
 290 295 300  
 Arg Cys Phe Pro  
 305

<210> 5385

<211> 82  
 <212> PRT  
 <213> B.fragilis

<400> 5385

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Asn Ile Leu Leu Ile Lys Arg Asp Ser Lys Asp Leu Leu Asn Lys Ile
1           5           10           15
His Ser Leu Leu Leu Ile Lys Asn Asn Arg Glu Thr Ser Phe His
          20           25           30
Leu Ile Asn Pro Lys Leu Ile Asn Lys Leu Thr Ile Phe Val Asp Ile
          35           40           45
Thr Lys Ile Ile Asn Leu Tyr Glu Thr Thr Ser Phe Lys Arg Asn Arg
          50           55           60
Thr Arg Tyr Gln Lys Arg Ser Ser Gln Lys Glu Asn Tyr Tyr Thr Leu
65           70           75           80
Tyr Ile

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<210> 5386  
 <211> 190  
 <212> PRT  
 <213> B.fragilis

<400> 5386

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Ile Met Gln Leu Leu Lys Lys Arg Ile Leu Gln Asp Gly Lys Cys Tyr
1           5           10           15
Glu Gly Gly Ile Leu Lys Val Asp Ser Phe Ile Asn His Gln Met Asp
          20           25           30
Pro Val Leu Met Lys Ser Ile Gly Val Glu Phe Val Arg Leu Phe Ala
          35           40           45
Gly Thr Asn Val Asn Lys Ile Met Thr Ile Glu Ala Ser Gly Ile Ala
          50           55           60
Pro Ala Ile Met Thr Gly Tyr Leu Met Asp Leu Pro Val Val Phe Ala
65           70           75           80
Lys Lys Lys Ser Pro Arg Thr Ile Gln Asn Ala Leu Ser Thr Thr Val
          85           90           95
His Ser Phe Thr Lys Asp Arg Asp Tyr Glu Val Val Ile Ser Ser Asp
          100          105          110
Phe Leu Thr Pro Lys Asp Asn Val Leu Phe Val Asp Asp Phe Leu Ala
          115          120          125
Tyr Gly Asn Ala Ala Leu Gly Val Ile Asp Leu Ile Lys Gln Ser Gly
          130          135          140
Ala Asn Leu Val Gly Met Gly Phe Ile Ile Glu Lys Ala Phe Gln Asn
145          150          155          160
Gly Arg Lys Thr Leu Glu Glu Arg Gly Val Arg Val Glu Ser Leu Ala
          165          170          175
Ile Ile Glu Asp Leu Ser Asn Cys Arg Ile Thr Ile Lys Asp
          180          185          190

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<210> 5387  
 <211> 67  
 <212> PRT  
 <213> B.fragilis

<400> 5387

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Asp Ile Phe Ser Asn Ser Leu Ser Thr Gln Ala Val Phe Gln Gly Glu
1           5           10           15
Asp Glu Ala Gly Phe Ala Ser Ala Val Arg Ala Asp Glu Ala Lys Arg
          20           25           30

```



Met Asn Ala Thr Gly Lys Val Ile Asp Asn Phe Ala Asp Gly Leu Ala  
           35                          40                          45  
 Ser Ile Gly Ser Asp Asp Ile Val Gly Tyr Leu Ala Lys Val Thr Leu  
           50                          55                          60  
 Tyr Val Asp  
 65

<210> 5388

<211> 123

<212> PRT

<213> B.fragilis

<400> 5388

Tyr Phe Ala Ser Phe Tyr Phe Phe Arg Asp Lys Ile Tyr Phe Ile Phe  
 1                          5                          10                          15  
 Phe Leu Arg Thr Tyr Glu Gly Ile Pro Lys Arg Ala Ile Glu Pro Glu  
                           20                          25                          30  
 Phe Ser Ser Phe Arg Asn Ser Tyr Lys Ser Glu Glu His Asn Lys Phe  
                           35                          40                          45  
 Gln Glu Leu Val Lys Lys Tyr Gly Phe Tyr Pro Glu Leu Cys Asp Thr  
           50                          55                          60  
 Cys Arg Lys Gly Asn Leu Leu Lys Ile Lys Ser Lys Arg Arg Phe Tyr  
 65                          70                          75                          80  
 Lys Ser Leu Cys Gly Glu Met Thr Arg Asp Leu Leu Ile Lys Pro Phe  
                           85                          90                          95  
 Phe Val Tyr Lys Gly Leu Ser Phe Asn Ser Ile Cys Val Thr Glu Pro  
                           100                          105                          110  
 Gly Arg Thr Val Arg Pro Ala Asp His Ile Ser  
           115                          120

<210> 5389

<211> 335

<212> PRT

<213> B.fragilis

<400> 5389

Ile Asn Lys Ser Ile Met Val Lys Ile Ile Leu Gly Val Leu Ser Leu  
 1                          5                          10                          15  
 Leu Val Met Leu Ser Cys Ser Thr Ala Val Lys Glu Asn Thr Thr Gln  
                           20                          25                          30  
 Pro Asp Ile Met Glu Thr Asn Lys Lys Asn Leu Gly Asn Leu Leu Ala  
                           35                          40                          45  
 Leu Tyr Pro Lys Pro Met Thr Val Val Gly Ala Glu Val Glu Gly Lys  
           50                          55                          60  
 Val Asn Trp Leu Val Val Gly His Thr Gly Val Ile Gly His Asp Arg  
 65                          70                          75                          80  
 Ile Leu Val Ser Met Ser Lys Ser His Tyr Thr Asn Gln Gly Val Lys  
                           85                          90                          95  
 Lys Ser Lys Arg Leu Ser Val Asn Leu Val Ser Arg Glu Met Leu Pro  
                           100                          105                          110  
 Lys Ala Asp Tyr Val Gly Ser Val Ser Gly Ala Thr Val Asp Lys Ser  
           115                          120                          125  
 Glu Val Phe Ala Tyr His Ile Gly Glu Asn Asp Thr Pro Val Ile Asp  
           130                          135                          140  
 Ala Ser Pro Leu Thr Met Glu Cys Glu Val Val Asp Ile Tyr Glu Thr  
 145                          150                          155                          160  
 Asp Gly Phe Asp Asn Phe Ile Cys Ala Ile Val Asn Thr Tyr Ala Ala  
                           165                          170                          175  
 Ser Asp Val Leu Asp Ser Asp Gly Lys Leu Asp Tyr Thr Lys Leu Lys

180	185	190
Pro Val Leu Phe Glu Phe Pro Thr Tyr Ser Tyr Leu Ala Thr Gly Glu		
195	200	205
Ile Ile Gly Lys Cys Leu Asn Pro Asp Lys Pro Gly Met Cys Val Lys		
210	215	220
Glu Pro Met Thr Thr Asp Gly Ile Val Arg Leu Ser Lys Ile Glu Val		
225	230	235
Tyr Pro Gln Tyr Leu Asp Glu Tyr Met Asn Tyr Ala Thr Glu Val Gly		
245	250	255
Glu Ile Ser Leu Arg Thr Glu Pro Gly Val Leu Thr Met Tyr Ala Val		
260	265	270
Gly Glu Lys Glu Asn Pro Cys Lys Val Thr Ile Leu Glu Thr Tyr Ala		
275	280	285
Ser Arg Glu Ala Tyr Glu Gln His Ile Ala Ser Glu His Phe Gln Lys		
290	295	300
Tyr Lys Gln Gly Thr Leu His Met Val Lys Ser Leu Val Leu Ser Asp		
305	310	315
Gln Thr Pro Leu Asn Pro Ala Asn Lys Leu Asn Asn Phe Met Gln		
325	330	335

&lt;210&gt; 5390

&lt;211&gt; 415

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5390

Lys Lys Glu Ser Met Asn Lys Glu Ile Asp Ile Lys Asp Met Ala Pro	
1	5
Val Lys Ala Ser Glu Arg His Val Ile Leu Asp Ala Leu Arg Gly Phe	
20	25
Ala Leu Leu Val Ile Cys Phe Ala Asn Phe Pro Glu Phe Ser Leu Tyr	
35	40
Thr Phe Gln Lys Pro Glu Ile Thr Glu Ala Met Pro Thr Ala Glu Ile	
50	55
Asp Lys Val Ile Arg Phe Pro Gln Tyr Leu Phe Val Asp Gly Lys Phe	
65	70
Tyr Thr Ile Phe Ser Leu Leu Phe Gly Ile Gly Phe Ser Ile Ile Ile	
85	90
Ser Asn Ala Ala Lys Lys Gly Thr Asp Gly Phe Arg Ile Phe Tyr Arg	
100	105
Arg Met Ile Val Leu Ala Ala Ile Gly Phe Leu His Leu Met Phe Ile	
115	120
Trp Ser Gly Asp Ile Leu Leu Leu Tyr Ala Leu Leu Gly Met Leu Leu	
130	135
Pro Leu Phe Arg His Val Ser Asp Arg Val Leu Leu Gly Thr Ser Ala	
145	150
Val Leu Leu Leu Leu Pro Ile Leu Ile Asp Trp Leu Ala Gly Thr Phe	
165	170
Gly Val Ser Arg Ser Ser Pro Ala Val Arg Met Gln Gln His Tyr Cys	
180	185
Asn Leu Tyr Gly Ile Thr Glu Tyr Asn Phe Gly Ile Trp Leu Arg Asp	
195	200
Ala Glu Asn Tyr Gly Gly Val Phe Gln Phe Leu Val Gln Gly Ala Trp	
210	215
Val Arg Leu Gln Glu Phe Ile Asp Gly Asn Arg Tyr Phe Lys Val Leu	
225	230
Gly Leu Phe Leu Leu Gly Phe Tyr Ile Gly Arg Lys Gln Ile Tyr Ala	
245	250
Asp Leu Glu Ala Asn Arg Val Leu Leu Lys Lys Thr Val Thr Tyr Gly	

260 265 270  
 Phe Leu Leu Gly Leu Pro Leu Ser Val Leu Tyr Ala Trp Ser Ala Val  
 275 280 285  
 Asn Gly His Pro Phe Gly Thr Ala Ala His Thr Ala Ile Tyr Thr Ala  
 290 295 300  
 Ser Val Tyr Pro Leu Gly Phe Ala Tyr Val Ser Ala Ile Cys Leu Leu  
 305 310 315 320  
 Tyr Leu His Gly Arg Glu Trp Arg Leu Trp Arg Cys Leu Ala Ala Pro  
 325 330 335  
 Gly Arg Met Ala Leu Thr Asn Tyr Val Gly Gln Ser Val Trp Gly Met  
 340 345 350  
 Val Leu Phe Tyr Gly Ile Gly Phe Gly Leu Gly Ala Gly Ile Gly Leu  
 355 360 365  
 Thr Gly Thr Glu Ser Ile Ala Phe Tyr Val Phe Leu Val Gln Met Ala  
 370 375 380  
 Phe Ser Ala Leu Trp Leu Ser Tyr Phe Arg Phe Gly Pro Leu Glu Trp  
 385 390 395 400  
 Gly Trp Arg Met Leu Thr Tyr Gly Lys Trp Leu Lys Ile Arg Lys  
 405 410 415

<210> 5391  
 <211> 75  
 <212> PRT  
 <213> B.fragilis

<400> 5391  
 Ala Val Cys Pro Leu Leu Glu Val Leu Pro His Asn Leu Ser Val Trp  
 1 5 10 15  
 Phe Leu Ser Gly Asn Thr Phe Val Gly Tyr Ala Asp Gln His Pro Leu  
 20 25 30  
 Val Ser Val Ile Asp Tyr Asp Thr Val Thr Pro Ile Leu His Thr His  
 35 40 45  
 Ser Gln Phe Ser Val Tyr Ala Leu Tyr Lys Gly Met Gly Val Thr Leu  
 50 55 60  
 Leu Ser Gly Leu Val Ala Trp Asn Ser Val Gly  
 65 70 75

<210> 5392  
 <211> 78  
 <212> PRT  
 <213> B.fragilis

<400> 5392  
 Ile Thr Ile Pro Ser Arg Pro Ser Cys Ile Arg Thr Ala Asn Phe Gln  
 1 5 10 15  
 Ser Met His Phe Ile Lys Gly Trp Ala Leu Leu Phe Ser Pro Asp Leu  
 20 25 30  
 Leu His Gly Thr Pro Leu Gly Asn His Ile Lys Asp Phe Ser Phe Phe  
 35 40 45  
 Ser Tyr Gln Ser Asn Glu Ala Gly Glu His Ile Arg Cys His Ile Ile  
 50 55 60  
 Asp Met Ala Lys Ser Lys Leu Ile Asn Gly Glu Gln Ile Met  
 65 70 75

<210> 5393  
 <211> 208  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5393

Ile Leu Lys Pro Thr Arg Asn Met Glu Ile Thr Asn Ala Glu Phe Val  
 1 5 10 15  
 Ile Ser Asn Thr Asp Val Lys Lys Cys Pro Ala Gly Thr Phe Pro Glu  
 20 25 30  
 Tyr Ala Phe Ile Gly Arg Ser Asn Val Gly Lys Ser Ser Leu Ile Asn  
 35 40 45  
 Met Leu Thr Gly Arg Lys Gly Leu Ala Met Thr Ser Ala Thr Pro Gly  
 50 55 60  
 Lys Thr Met Leu Ile Asn His Phe Leu Ile Asn Asn Ser Trp Tyr Leu  
 65 70 75 80  
 Val Asp Leu Pro Gly Tyr Gly Tyr Ala Arg Arg Gly Gln Lys Gly Gln  
 85 90 95  
 Glu Gln Ile Arg Thr Ile Ile Glu Asp Tyr Ile Leu Glu Arg Glu Gln  
 100 105 110  
 Met Thr Asn Leu Phe Val Leu Ile Asp Ser Arg Leu Glu Pro Gln Lys  
 115 120 125  
 Ile Asp Leu Glu Phe Met Glu Trp Leu Gly Glu Asn Gly Ile Pro Phe  
 130 135 140  
 Ala Ile Ile Phe Thr Lys Ala Asp Lys Leu Lys Gly Gly Arg Leu Lys  
 145 150 155 160  
 Ile Asn Ile Ser Ala Tyr Leu Arg Glu Leu Arg Lys Gln Trp Glu Glu  
 165 170 175  
 Leu Pro Pro Tyr Phe Ile Thr Ser Ser Glu Glu Arg Leu Gly Arg Thr  
 180 185 190  
 Glu Val Leu Asn Tyr Ile Lys Ser Ile Asn Lys Glu Leu Asn Ser Lys  
 195 200 205

&lt;210&gt; 5394

&lt;211&gt; 175

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5394

Lys Asn Lys Thr Met Gln Asn Ile Ile Ile Thr Phe Ile Ala Phe Phe  
 1 5 10 15  
 Val Leu Arg Leu Leu Ser Leu Ser Tyr Ser Ile Arg Asn Glu Lys Arg  
 20 25 30  
 Leu Leu Lys Ser Gly Ala Val Gln Tyr Gly Lys Val Asn Ser Leu Leu  
 35 40 45  
 Leu Thr Leu Ala His Ile Val Tyr Tyr Phe Ser Ala Leu Tyr Glu Ala  
 50 55 60  
 Tyr Thr Ser Gly Thr Thr Phe Asn Tyr Phe Ser Val Cys Gly Val Phe  
 65 70 75 80  
 Ile Met Gly Phe Ala Tyr Ala Met Leu Phe Tyr Val Ile Tyr Lys Leu  
 85 90 95  
 His Asp Val Trp Thr Val Lys Leu Tyr Ile Ile Pro Asp His Arg Ile  
 100 105 110  
 Glu Lys Ser Phe Leu Phe Arg Thr Val Arg His Pro Asn Tyr Tyr Leu  
 115 120 125  
 Asn Ile Ile Pro Glu Leu Ile Gly Ile Ala Leu Leu Cys Asn Ala Trp  
 130 135 140  
 Tyr Thr Leu Leu Ile Gly Leu Pro Ile Tyr Ala Cys Leu Leu Ala Ile  
 145 150 155 160  
 Arg Ile Arg Gln Glu Arg Ala Met Lys Glu Leu Leu Glu Asn  
 165 170 175

&lt;210&gt; 5395

&lt;211&gt; 495

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5395

Asn	Ser	Gly	Thr	Arg	Lys	Leu	Val	Ser	Gln	Thr	Asn	Ala	Leu	Val	His
1				5					10					15	
Asn	Leu	Met	Gly	Thr	Gly	Lys	Gly	Lys	Thr	Asp	Tyr	Leu	Leu	Ser	Leu
			20					25					30		
Ile	Arg	Glu	Gly	Lys	Gln	Met	Thr	Leu	Gly	Gln	Gln	Leu	Arg	Leu	Thr
		35					40					45			
Ala	Tyr	Leu	Ser	Val	Pro	Ala	Ile	Met	Ala	Gln	Ile	Ser	Ser	Ile	Ala
	50					55				60					
Met	Gln	Tyr	Ile	Asp	Ala	Ser	Met	Val	Gly	Ser	Leu	Gly	Ala	Asn	Ala
65					70					75				80	
Ala	Ala	Ser	Ile	Gly	Leu	Val	Ser	Thr	Thr	Thr	Trp	Leu	Phe	Trp	Glu
				85					90					95	
Leu	Cys	Ala	Ala	Ala	Ala	Thr	Gly	Phe	Ser	Val	Gln	Val	Ala	His	Lys
			100					105					110		
Ile	Gly	Ala	Gly	Asp	Phe	Val	Gly	Ala	Arg	Lys	Ile	Leu	Arg	Gln	Ser
	115						120					125			
Ile	Ala	Ala	Thr	Leu	Val	Phe	Ser	Ser	Leu	Leu	Ala	Ala	Val	Gly	Ile
	130					135					140				
Ser	Ile	Ser	Gly	Met	Leu	Pro	Gly	Trp	Leu	Gly	Gly	Asp	Glu	Val	Ile
145					150					155				160	
Arg	Ser	Asp	Ser	Ser	Leu	Tyr	Phe	Trp	Ile	Phe	Ala	Leu	Phe	Leu	Pro
				165					170					175	
Ala	Leu	Gln	Leu	Asn	Phe	Leu	Ala	Gly	Gly	Met	Leu	Arg	Cys	Ser	Gly
			180					185					190		
Asn	Met	Arg	Val	Pro	Ser	Met	Leu	Asn	Val	Leu	Met	Cys	Leu	Leu	Asp
		195					200					205			
Ile	Val	Phe	Asn	Phe	Phe	Leu	Ile	Phe	Pro	Ser	Arg	Gln	Val	Glu	Trp
	210					215					220				
Phe	Gly	Val	Thr	Phe	Thr	Thr	Pro	Gly	Ala	Gly	Leu	Gly	Val	Glu	Gly
225					230					235				240	
Ala	Ile	Leu	Gly	Thr	Val	Leu	Ala	Glu	Leu	Ile	Thr	Ala	Gly	Gly	Met
				245					250					255	
Met	Trp	Tyr	Leu	Cys	Arg	Arg	Ser	Pro	Met	Leu	Arg	Leu	Ser	Gly	Glu
			260					265					270		
Arg	Gly	Ser	Phe	Leu	Pro	Arg	Lys	Glu	Thr	Leu	Ser	Lys	Ala	Phe	Arg
		275					280					285			
Ile	Ser	Leu	Pro	Met	Gly	Phe	Glu	His	Met	Ala	Ile	Cys	Gly	Ala	Gln
	290					295					300				
Ile	Ala	Thr	Thr	Val	Ile	Val	Ala	Pro	Leu	Gly	Ile	Ile	Ala	Ile	Ala
305					310					315				320	
Ala	Asn	Ser	Phe	Ala	Ile	Thr	Ala	Glu	Ser	Leu	Cys	Tyr	Met	Pro	Gly
				325					330					335	
Tyr	Gly	Ile	Ser	Glu	Ala	Ala	Thr	Thr	Leu	Val	Gly	Gln	Ser	Leu	Gly
			340					345					350		
Ala	Asn	Arg	Ile	Arg	Leu	Leu	Arg	Arg	Phe	Ala	Asn	Ile	Thr	Val	Trp
		355					360					365			
Ser	Gly	Met	Leu	Ile	Met	Gly	Val	Met	Gly	Thr	Leu	Met	Tyr	Met	Ala
	370					375					380				
Ala	Pro	Gln	Ile	Ile	Gly	Val	Met	Thr	Pro	Val	Glu	Glu	Ile	Arg	Thr
385					390					395				400	
Leu	Gly	Ile	Glu	Ile	Leu	Arg	Ile	Glu	Ala	Phe	Ala	Glu	Pro	Met	Phe
				405					410					415	
Ala	Ala	Ser	Ile	Val	Ala	Tyr	Gly	Ile	Phe	Val	Gly	Val	Gly	Asn	Thr
			420					425					430		
Phe	Val	Pro	Ser	Leu	Met	Asn	Phe	Gly	Ser	Ile	Trp	Gly	Val	Arg	Leu

435	440	445
Thr Leu Ala Ala Trp	Leu Ala Pro Thr Met Gly	Leu Arg Gly Val Trp
450	455	460
Phe Ala Met Cys Ile	Glu Leu Cys Phe Arg Gly	Val Ile Phe Leu Ala
465	470	475
Arg Leu Trp Gly Ser	Asn Trp Ile Tyr Lys	Leu Arg Ile Asn Arg
485	490	495

&lt;210&gt; 5396

&lt;211&gt; 360

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5396

Asn Asn Thr Ala Met Lys Leu Gln Ala Ile Ala Ile Leu Thr Phe Leu
1 5 10 15
Thr Phe Ala Asn Val Met Ala Gln Glu Thr Thr Thr Thr Lys Tyr Ile
20 25 30
Asn Ser Thr Asp Met Glu Ala Leu Lys Leu Thr Gln Glu Trp Asp Lys
35 40 45
Thr Phe Pro Gln Ser Asp Lys Val Glu His Thr Lys Ile Thr Phe His
50 55 60
Asn Arg Tyr Gly Ile Thr Leu Ala Ala Asp Leu Tyr Lys Pro Lys Asn
65 70 75 80
Thr Gln Gly Arg Leu Ala Ala Ile Ala Val Ser Gly Pro Tyr Gly Ala
85 90 95
Val Lys Glu Gln Val Ser Gly Arg Tyr Ala Gln Thr Leu Ala Glu Arg
100 105 110
Gly Phe Leu Thr Ile Ala Phe Asp Pro Ser Tyr Tyr Gly Glu Ser Gly
115 120 125
Gly Thr Pro Arg Tyr Leu Thr Ser Pro Glu Ile Ser Thr Glu Asp Phe
130 135 140
Ser Ala Ala Val Asp Tyr Leu Thr Ser Arg Ala Asp Val Asp Pro Glu
145 150 155 160
Arg Ile Gly Ile Leu Gly Ile Cys Gly Trp Gly Gly Phe Ala Leu Asn
165 170 175
Ala Ala Ala Asn Asp Pro Arg Ile Lys Ala Thr Val Thr Ser Thr Met
180 185 190
Tyr Asp Met Ser Arg Val Asn Ala Asn Gly Tyr Phe Asp Ala Met Ser
195 200 205
Ser Asp Asp Arg Tyr Lys Leu Arg Glu Gln Leu Asn Ala Gln Arg Thr
210 215 220
Glu Asp Tyr Arg Asp Asp Ser Tyr Val Arg Asp Gly Gly Val Leu Asp
225 230 235 240
Pro Val Thr Asp Asp Thr Pro Gln Phe Val Lys Glu Tyr His Asp Tyr
245 250 255
Tyr Lys Thr Glu Arg Gly Tyr His Arg Arg Ser Pro Asn Ser Asn Glu
260 265 270
Gly Ile Thr Lys Thr Ser Val Leu Ala Phe Ile Asn Met Pro Leu Leu
275 280 285
Thr Tyr Ile Ser Glu Ile Arg Ser Ala Val Leu Met Ile His Gly Glu
290 295 300
Lys Ala His Ser Arg Tyr Phe Ser Glu Asp Ala Tyr Lys Arg Leu Thr
305 310 315 320
Gly Ser Asn Lys Glu Leu Leu Ile Ile Pro Gly Ala Asn His Val Asp
325 330 335
Leu Tyr Asp Asn Leu Asn Val Ile Pro Phe Asp Lys Ile Asp Ala Phe
340 345 350
Phe Lys Asn Ala Leu Lys Glu Lys



Gly Cys Glu Leu Ser Ala Asn Asn Leu Ile Tyr Arg Asp Gly Arg Tyr  
 130 135 140  
 Met Ile Asp Phe Asp Asp Leu Ala Ala Lys Ala Ala Asp Pro Lys Ala  
 145 150 155 160  
 Lys Ile Leu Leu Leu Cys Asn Pro His Asn Pro Val Gly Arg Val Trp  
 165 170 175  
 Thr Pro Glu Glu Leu Arg His Ile Gly Asp Ile Cys Leu Arg Asn Gly  
 180 185 190  
 Val Phe Val Val Ala Asp Glu Ile His Cys Glu Leu Thr Tyr Glu Gly  
 195 200 205  
 His Asp Tyr Thr Pro Phe Ala Ser Leu Ser Glu Arg Phe Gln Gln Asn  
 210 215 220  
 Ser Val Thr Cys Ile Ser Pro Ser Lys Ala Phe Asn Leu Ala Gly Leu  
 225 230 235 240  
 Gln Ile Ala Asn Ile Ile Ala Leu Asp Glu Glu Val Arg Arg Arg Ile  
 245 250 255  
 Asp Arg Ala Ile Asn Ile Asn Glu Val Cys Asp Val Asn Pro Phe Gly  
 260 265 270  
 Val Ile Ala Thr Ile Ala Ala Tyr Asn Glu Gly Gly Glu Trp Leu Asp  
 275 280 285  
 Ala Leu Arg Lys Tyr Leu Arg Gly Asn Tyr Glu Tyr Leu Cys His Phe  
 290 295 300  
 Phe Ala Glu Arg Leu Pro Gln Tyr Pro Val Leu Pro Leu Glu Gly Thr  
 305 310 315 320  
 Tyr Leu Val Trp Ile Asp Cys Arg Ala Leu Gly Ile Gly Ser Asp Ala  
 325 330 335  
 Thr Thr Leu His Leu Gln Glu Gln Lys Leu Met Val Asn Ser Gly  
 340 345 350  
 Thr Met Tyr Gly Pro Ser Gly Glu Gly Phe Ile Arg Leu Asn Ile Ala  
 355 360 365  
 Cys Pro Arg Thr Leu Leu Ala Asp Gly Leu Glu Arg Met Ala Arg Val  
 370 375 380  
 Leu Glu Cys Cys  
 385

&lt;210&gt; 5399

&lt;211&gt; 204

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5399

Lys Gln Gly Tyr Gln Met Lys Arg Lys Leu Leu Ser Phe Ala Val Leu  
 1 5 10 15  
 Ile Thr Leu Leu Leu Val Pro Thr Val Asn Arg Ala Gln Ser Ile Lys  
 20 25 30  
 Asp Leu Phe Asn Lys Asp Asn Ile Ser Lys Val Val Asn Ala Val Thr  
 35 40 45  
 Gly His Thr Glu Thr Val Asp Met Thr Gly Thr Trp Arg Tyr Thr Gly  
 50 55 60  
 Ser Ala Ile Glu Phe Glu Ser Glu Asn Leu Leu Lys Lys Ala Gly Gly  
 65 70 75 80  
 Thr Val Ala Ala Ser Ala Ala Glu Gln Lys Leu Asp Glu Gln Leu Ala  
 85 90 95  
 Lys Val Gly Ile Lys Glu Gly Gln Leu Ser Phe Thr Phe Asn Ala Asp  
 100 105 110  
 Ser Thr Phe Val Ser Thr Leu Gly Lys Arg Lys Leu Asn Gly Thr Tyr  
 115 120 125  
 Ser Tyr Asp Ala Gly Thr Gln Met Leu His Leu Arg Tyr Met Lys Leu  
 130 135 140



Ile Pro Met Asn Ala Lys Val Asn Tyr Thr Thr Gln Gln Met Asp Leu  
 145 150 155 160  
 Leu Phe Glu Ala Asp Lys Leu Leu Lys Leu Ile Thr Phe Leu Ser Ser  
 165 170 175  
 Lys Ser Ser Ser Ala Thr Leu Lys Ala Ile Ser Ser Leu Ala Asp Ser  
 180 185 190  
 Tyr Asp Gly Met Met Leu Gly Tyr Glu Leu Lys Arg  
 195 200

&lt;210&gt; 5400

&lt;211&gt; 109

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5400

Lys Gln Tyr Gln Lys Phe Val Thr Ile Leu Val Leu Leu Ala Gly Ile  
 1 5 10 15  
 Val Pro Val Tyr Ala Ile Met Asn Ile Val Phe Asp Pro Asn Asp Asp  
 20 25 30  
 Gly Asn Leu Leu Ile Thr Leu Gly Thr Leu Thr Pro Ile Leu Gly Asp  
 35 40 45  
 Leu Leu Met Val Tyr Ala Phe Lys Asp Lys Tyr Gln Ile Leu Ile Ser  
 50 55 60  
 Asn His Arg Leu Gln Asn Lys Cys Tyr Leu Cys Ala Arg Tyr Asp Asp  
 65 70 75 80  
 Thr Cys His Tyr Cys Met Leu Leu Cys His Ser Leu Ala Asp Ser Pro  
 85 90 95  
 Tyr His Arg Thr Glu Arg Arg Phe Glu Cys Ser Val Phe  
 100 105

&lt;210&gt; 5401

&lt;211&gt; 179

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5401

Met Met Lys Gln Ser Phe Leu Ala Asn Glu Arg Ile Tyr Leu Arg Ala  
 1 5 10 15  
 Val Glu Pro Glu Asp Leu Asp Leu Met Tyr Glu Met Glu Asn Asp Pro  
 20 25 30  
 Ser Met Trp Asp Ile Ser Ser Phe Thr Val Pro Tyr Ser Arg Phe Val  
 35 40 45  
 Leu Lys Gln Tyr Ile Glu Gly Ser Gln Ser Asp Met Phe Ala Asp Lys  
 50 55 60  
 Gln Leu Arg Leu Met Ile Met Arg Arg Lys Asp Asn Cys Thr Leu Gly  
 65 70 75 80  
 Thr Val Asp Ile Thr Asp Phe Val Pro Leu His Ser Arg Gly Ala Val  
 85 90 95  
 Gly Ile Ala Val His Ser Asn Tyr Arg Gln Glu Gly Tyr Ala Ser Asp  
 100 105 110  
 Ala Leu Lys Leu Leu Cys Glu Tyr Ala Phe Asn Phe Leu Phe Ile Lys  
 115 120 125  
 Gln Leu Tyr Ala His Ile Ala Val Asp Asn Glu Pro Ser Leu Arg Leu  
 130 135 140  
 Phe Asn Ser Cys Gly Phe Thr Gln Cys Gly Val Leu Lys Glu Trp Leu  
 145 150 155 160  
 Leu Thr His Glu Gly Tyr Lys Asp Ala Val Leu Val Gln Cys Met Asn  
 165 170 175  
 Pro Lys Arg

<210> 5402  
 <211> 149  
 <212> PRT  
 <213> B.fragilis

<400> 5402  
 Met Glu Glu Gln Ile Lys Arg Ile Val Lys Ser Gln Lys Val Gln Tyr  
 1 5 10 15  
 Ile Ser Phe Trp Ile Ile Pro Leu Leu Val Leu Leu Gly Glu Ala  
 20 25 30  
 Gly Val Leu Pro Val Gly Ile Lys Ala Asp Asn Val Arg Ala Val Tyr  
 35 40 45  
 Val Phe Glu Thr Val Gly Ile Leu Met Thr Ala Val Cys Ile Pro Leu  
 50 55 60  
 Ser Leu Lys Leu Phe Ser Phe Val Leu Thr Lys Lys Ile Asp Gln Leu  
 65 70 75 80  
 Thr Phe Pro Val Ala Leu Ser Arg Tyr Met Leu Trp Gly Ala Val Arg  
 85 90 95  
 Leu Ala Leu Leu Glu Phe Val Val Val Phe Asn Leu Ala Gly Tyr Tyr  
 100 105 110  
 Phe Thr Leu Ser Ser Thr Gly Ala Leu Cys Ala Leu Ile Gly Leu Thr  
 115 120 125  
 Ala Ser Phe Phe Cys Leu Pro Gly Glu Lys Arg Leu Arg Ala Glu Leu  
 130 135 140  
 His Ile Asp Lys Glu  
 145

<210> 5403  
 <211> 70  
 <212> PRT  
 <213> B.fragilis

<400> 5403  
 His Arg Val Lys Ala Cys Ser Leu Asp Val Asn Lys Lys Phe Phe Lys  
 1 5 10 15  
 Cys Lys Arg Leu Val Ile Cys Ala Gln Glu Pro Asp Asn Leu Gln Lys  
 20 25 30  
 Ala Leu Thr Met Leu Ile Glu Lys Arg Tyr Lys Asp Glu Asp Thr Gly  
 35 40 45  
 Ser Asp Gly Val Asn Ser Leu Pro Lys Leu Lys Leu Ser Tyr Ser Ala  
 50 55 60  
 Cys Val Tyr Phe Phe Leu  
 65 70

<210> 5404  
 <211> 230  
 <212> PRT  
 <213> B.fragilis

<400> 5404  
 Ile Lys Thr Lys Asn Met Arg Pro Tyr Ile Ile Ser His Met Met Thr  
 1 5 10 15  
 Ser Val Asp Gly Arg Ile Asp Cys Pro Met Val Gly Gln Leu Ser Thr  
 20 25 30  
 Asp Glu Tyr Tyr Ile Ala Leu Glu Lys Leu Gly Pro Cys Ser Lys Leu  
 35 40 45  
 Ser Gly Arg Ile Thr Thr Ala Leu Glu Cys Ser Ala Val Lys Glu Glu

50		55		60
Ser Thr Pro Met Glu Gly	Thr Pro Ile Gly His Lys Ser Val Tyr Val			
65	70	75	80	
Ala Ser Lys Ser Asp Glu Tyr Thr Ile Ile Val Asp Thr Tyr Gly Lys				
	85	90	95	
Leu Arg Trp Gln Glu Gly Glu Ala Asp Gly His Pro Leu Leu Cys Ile				
	100	105	110	
Val Ser Glu Gln Val Ser Glu Glu Tyr Leu Glu Thr Leu Arg Thr Leu				
	115	120	125	
Gly Ile Ser Trp Ile Ala Ala Gly Ala Glu Arg Ile Asp Leu Pro Gln				
	130	135	140	
Ala Met Glu Leu Leu His Glu His Phe Gly Val Glu Arg Leu Ala Ile				
	145	150	155	160
Val Gly Gly Gly His Ile Cys Gly Gly Phe Leu Glu Ala Gly Leu Ile				
	165	170	175	
Asp Glu Val Ser Ile Met Val Ala Pro Gly Ile Asp Gly Arg Lys Gly				
	180	185	190	
Gln Thr Ala Val Phe Asp Gly Ile Ser Arg Met Glu Cys Asn Pro Tyr				
	195	200	205	
Lys Leu Lys Leu Glu Ser Val Glu Gln Trp Glu Thr Gly Ile Val Trp				
	210	215	220	
Leu Arg Tyr Lys Val Lys				
225	230			

&lt;210&gt; 5405

&lt;211&gt; 406

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5405

Asn Ile Thr Lys Met Lys Ile Tyr Ile Phe Ile Ile Leu Ala Ala Ala				
1	5	10	15	
Thr Ser Ile Ser Leu Ile Ser Cys Asp Ser Lys Gln Ser Asp Thr Arg				
	20	25	30	
Ser Ala Ser Ser Ser Glu Val His Arg Asn Asp Asp Gly His Asp His				
	35	40	45	
Arg Glu Ser Asp Gly Asp Asn His Ser Glu Ile Glu Asn Ser Gly Lys				
	50	55	60	
Gly His Glu Asp Glu Ile Ile Phe Thr Arg Gln Ala Glu Ala Ile				
	65	70	75	80
Gly Leu Glu Ile Tyr Asn Val Val Pro Gly Ser Phe Ala Gln Val Ile				
	85	90	95	
Arg Thr Ser Gly Gln Ile Gln Ala Ala Gln Gly Asp Glu Glu Thr Ile				
	100	105	110	
Val Ala Thr Thr Asn Gly Val Val Ser Phe Pro Gly Gln Asn Ile Ile				
	115	120	125	
Glu Gly Ala Thr Val Gly Val Gly Ser Thr Ile Val Thr Ile Ser Ala				
	130	135	140	
Lys Asn Leu Tyr Glu Gly Asp Pro Val Ala Lys Ala Lys Ile Ala Tyr				
	145	150	155	160
Glu Thr Ala Leu Lys Glu Tyr Gln Arg Ala Glu Gly Leu Val Lys Asp				
	165	170	175	
Lys Ile Ile Ser Ala Lys Glu Phe Glu Gln Thr Arg Met Lys Tyr Glu				
	180	185	190	
Asn Ala Arg Thr Ala Tyr Glu Ala Gln Ala Ala Asn Val Thr Val Ser				
	195	200	205	
Gly Val Lys Val Thr Ser Pro Ile Ser Gly Tyr Val Lys Asn Arg Leu				
	210	215	220	
Val Ser Gln Gly Glu Tyr Val Thr Val Gly Gln Pro Val Ala Thr Ile				

225                      230                      235                      240  
 Ser Lys Asn Arg Arg Leu Gln Leu Arg Ala Asp Val Ser Glu Asn Tyr  
                                  245                      250                      255  
 Phe Asn Glu Leu Lys Lys Ile Arg Gly Ala Asn Phe Met Val Ser Tyr  
                                  260                      265                      270  
 Asn Asn Lys Val Tyr Arg Leu Glu Asp Leu His Gly Arg Leu Leu Ser  
                                  275                      280                      285  
 Phe Gly Lys Ala Ala Ala Glu Ser Ser Phe Tyr Ile Pro Ile Thr Phe  
                                  290                      295                      300  
 Glu Phe Asp Asn Ile Gly Asp Phe Ile Pro Gly Ser Tyr Val Glu Val  
 305                                   310                                   315                                   320  
 Tyr Leu Leu Thr Thr Pro Gln Asn Asn Val Phe Ser Ile Pro Val Thr  
                                  325                                   330                                   335  
 Ala Leu Thr Glu Glu Gln Gly Ile Tyr Phe Val Tyr Leu Gln Ile Ala  
                                  340                                   345                                   350  
 Glu Glu Glu Phe Val Lys Arg Glu Val Gly Ile Gly Glu Ser Asp Gly  
                                  355                                   360                                   365  
 Lys Asn Val Arg Ile Leu Ser Gly Leu Lys Glu Gly Glu Arg Val Val  
                                  370                                   375                                   380  
 Val Lys Gly Ala Tyr Gln Val Lys Leu Ala Ser Ser Ser Ser Val Leu  
 385                                   390                                   395                                   400  
 Pro Glu Gly His Ser His  
                                  405

<210> 5406  
 <211> 123  
 <212> PRT  
 <213> B.fragilis

<400> 5406  
 Ile Thr Lys Lys Glu Ile Gly Tyr Gly Lys Ile Thr Ile Asn Ser Ile  
 1                                   5                                   10                                   15  
 Ser Asn Asp Asn Arg Gln Thr Leu Pro Arg Phe Gln Pro Glu Ala Met  
                                  20                                   25                                   30  
 Arg Ala Asn Thr Arg Ile Val Asn Ala Leu Gln Ala Phe Gly Arg Thr  
                                  35                                   40                                   45  
 Arg Ser Met Thr Ser Ala Gln Val Ala Leu Gly Trp Leu Leu Gln Lys  
                                  50                                   55                                   60  
 Ala Pro Trp Ile Val Pro Ile Pro Gly Thr Thr Lys Leu Ser His Leu  
 65                                   70                                   75                                   80  
 Glu Glu Asn Leu Arg Thr Leu Asp Phe Asn Ile Ser Ser Gly Glu Trp  
                                  85                                   90                                   95  
 Lys Glu Leu Glu Asp Ala Val Ala Ala Ile Pro Val Val Gly Asp Arg  
                                  100                                   105                                   110  
 Tyr Asn Ala Glu Gln Gln Arg Gln Val Gly Arg  
                                  115                                   120

<210> 5407  
 <211> 379  
 <212> PRT  
 <213> B.fragilis

<400> 5407  
 Lys Ile Met Asp Arg Arg Asn Phe Leu Arg Thr Ala Ser Ser Phe Ala  
 1                                   5                                   10                                   15  
 Leu Leu Ala Ala Gly Ala Thr Thr Gly Val Ser Arg Val Phe Thr Glu  
                                  20                                   25                                   30  
 Pro Pro Ile Ser Ser Leu Ser Gly Asn Leu Ser Asp Lys Asn Thr Pro  
                                  35                                   40                                   45

5406  
 123  
 PRT  
 B.fragilis  
 5406  
 379  
 PRT  
 B.fragilis  
 5407  
 379  
 PRT  
 B.fragilis

Asn Ala Gly Asp Thr Met Glu Tyr Arg Lys Leu Gly Glu Leu Asp Val  
 50 55 60  
 Ser Ala Ile Gly Leu Gly Cys Leu Pro Met Val Gly Tyr Tyr Gly Gly  
 65 70 75 80  
 Lys Tyr Asp Lys Lys Asp Met Ile Ala Leu Ile Arg Arg Ala Tyr Asp  
 85 90 95  
 Lys Gly Val Thr Phe Phe Asp Thr Ala Glu Val Tyr Gly Pro Tyr Ile  
 100 105 110  
 Ser Glu Glu Trp Val Gly Glu Ala Leu Ala Pro Phe Arg Asp Lys Val  
 115 120 125  
 Lys Ile Gly Thr Lys Phe Gly Phe Gly Val Glu Glu Lys Gln Pro Thr  
 130 135 140  
 Ala Ile Asn Ser Arg Pro Asp His Ile Arg Trp Ala Val Glu Gly Ser  
 145 150 155 160  
 Leu Lys Arg Leu Arg Thr Asp His Ile Asp Leu Leu Tyr Gln His Arg  
 165 170 175  
 Val Asp Pro Lys Val Pro Met Glu Glu Val Ala Gly Thr Val Lys Asp  
 180 185 190  
 Leu Met Gln Glu Gly Lys Val Leu His Trp Gly Leu Ser Glu Ala Ser  
 195 200 205  
 Ala Ser Ser Ile Arg Arg Ala His Ala Val Cys Pro Leu Ser Ala Val  
 210 215 220  
 Gln Ser Glu Tyr Ala Ile Trp Trp Arg Glu Pro Glu Thr Lys Ile Phe  
 225 230 235 240  
 Pro Thr Leu Glu Lys Leu Gly Ile Gly Phe Val Pro Tyr Cys Pro Leu  
 245 250 255  
 Gly Arg Ala Phe Leu Thr Gly Ile Ile Asn Glu Asn Ser Arg Phe Tyr  
 260 265 270  
 Glu Gly Asp Arg Arg Trp Asn Leu Pro Gln Phe Thr Pro Glu Ala Leu  
 275 280 285  
 Lys His Asn Met Pro Leu Ile Ala Leu Val Arg Lys Trp Ala Glu Arg  
 290 295 300  
 Lys Gly Val Thr Leu Ala Gln Phe Ala Leu Leu Trp Met Leu Ser Arg  
 305 310 315 320  
 Lys Ser Trp Ile Ala Pro Ile Pro Gly Thr Thr Asn Pro Ala His Leu  
 325 330 335  
 Asp Asp Leu Leu Gly Ala Gly Thr Val Arg Leu Ser Ala Trp Glu Met  
 340 345 350  
 Glu Glu Phe Asp Lys Glu Tyr Ala Lys Ile Asp Leu Met Gly His Arg  
 355 360 365  
 Ala Asp Pro Phe Thr Glu Ser Gln Ile Asp Lys  
 370 375

&lt;210&gt; 5408

&lt;211&gt; 225

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5408

Ser Ile Thr Leu Thr Lys Gly Cys Trp Ser Ala Tyr Pro Thr Lys Val  
 1 5 10 15  
 Phe Pro Asp Arg Asn His Thr Asp Arg Leu Trp Gly Arg Thr Ser Asn  
 20 25 30  
 Asn Gly Gln Thr Ala Gln Thr Ala Asp Thr Leu Pro Ala Ile Leu Arg  
 35 40 45  
 Val Val Leu Asn Asn Gly Ile Glu Met Pro Gln Leu Gly Val Gly Thr  
 50 55 60  
 Ser Thr Leu Lys Glu Thr Ala Ala Glu Cys Val Lys His Ala Ile Gly  
 65 70 75 80

Leu Gly Tyr Arg Leu Val Asp Val Ala Gln Gly Tyr Asp Asn Glu Ala  
                     85                    90                    95  
 Glu Val Trp Tyr Gly Ile Lys Glu Ser Gly Ile Gly Arg Ser Glu Val  
                     100                    105                    110  
 Phe Ile Ile Ser Lys Val Ser Pro Asp Ala Val Arg Ser Gly Lys Val  
                     115                    120                    125  
 Arg Glu Ser Leu Asp Arg Thr Ile Glu Ala Phe Gly Gly Thr Tyr Val  
                     130                    135                    140  
 Asp Leu Met Leu Ile His Trp Pro Val Ala Arg Lys Val Lys Glu Arg  
                     145                    150                    155                    160  
 Trp Arg Ile Met Glu Lys Tyr Val Asp Val Gly Lys Ile Arg Ala Ile  
                     165                    170                    175  
 Gly Val Ser Asn Phe Asn Pro His His Val Asp Glu Leu Leu Ala Tyr  
                     180                    185                    190  
 Ala Arg Ile Lys Pro Val Val Asn Gln Ile Lys Ile His Pro Tyr Met  
                     195                    200                    205  
 Glu His Gln Glu Val Val Gly Asn Thr Phe Ala Lys Gly Ile Gln Val  
                     210                    215                    220  
 Gln  
 225

&lt;210&gt; 5409

&lt;211&gt; 342

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5409

Lys Asn Asn Ser Met Asp Lys Arg Lys Leu Gly Gln Leu Glu Val Ser  
 1                    5                    10                    15  
 Pro Ile Gly Met Gly Cys Met Gly Phe Ser His Gly Tyr Gly Gln Val  
                     20                    25                    30  
 Pro Pro Glu Ala Tyr Ala Ile Glu Ala Ile Arg Gly Ala Tyr Asp Tyr  
                     35                    40                    45  
 Gly Cys Thr His Phe Asp Thr Ala Glu Ala Tyr Gly Lys Glu Gln Phe  
                     50                    55                    60  
 Tyr Ala Gly His Asn Glu Glu Leu Val Gly Lys Ala Ile Glu Pro Phe  
                     65                    70                    75                    80  
 Arg Lys Lys Val Val Leu Ala Thr Lys Phe His Ile Gly Glu Leu Ser  
                     85                    90                    95  
 Lys Pro Asp Glu Thr Asn Leu Tyr Arg Glu Val Arg Arg His Leu Glu  
                     100                    105                    110  
 Asp Ser Met Ser Arg Leu Arg Thr Asp Tyr Ile Asp Leu Tyr Tyr Leu  
                     115                    120                    125  
 His Arg Ile Ser Glu Ala Val Arg Leu Glu Asp Val Ala Thr Val Met  
                     130                    135                    140  
 Gly Arg Leu Ile Gln Glu Gly Leu Ile Arg Gly Trp Gly Leu Ser Gln  
                     145                    150                    155                    160  
 Val Ser Ala Asp Gln Ile Arg Ala Ala His Lys Ile Thr Pro Leu Ser  
                     165                    170                    175  
 Ala Val Gln Asn Ile Tyr Ser Met Val Glu Arg Asp Cys Glu Thr Glu  
                     180                    185                    190  
 Ile Phe Pro Val Cys Leu Glu Lys Gly Ile Gly Val Val Pro Phe Ser  
                     195                    200                    205  
 Pro Ile Ala Ser Gly Phe Leu Ser Gly Lys Val Thr Pro Gln Asp Gln  
                     210                    215                    220  
 Phe Gly Phe Asp Asp Val Arg Lys Phe Val Pro Gln Leu Ser Lys Glu  
                     225                    230                    235                    240  
 Asn Ile Glu Ala Asn Gln Pro Ile Leu Asp Leu Leu His Arg Phe Ala  
                     245                    250                    255

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Val Glu Lys His Ala Thr Asn Ala Gln Ile Ser Leu Ala Trp Met Leu  
 260 265 270  
 His Lys Tyr Pro Asn Val Val Pro Ile Pro Gly Ser Lys Asn Gln Glu  
 275 280 285  
 Arg Ile Leu Glu Asn Leu Gly Ala Trp Asn Val Thr Leu Ser Asp Asp  
 290 295 300  
 Glu Phe Arg Gln Leu Gln Ser Ala Leu Asp Glu Cys Lys Val His Gly  
 305 310 315 320  
 His Arg Gly Cys Val Glu Thr Glu Gln Thr Ser Phe Gly Lys Gln Trp  
 325 330 335  
 Ser Glu Glu Thr Asp Lys  
 340

&lt;210&gt; 5410

&lt;211&gt; 292

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5410

Asn Lys Glu Ser Met Lys Val Ile Ser Asn Ala Glu Phe Gly Gly Glu  
 1 5 10 15  
 Arg Pro Leu Phe Glu Ser His Asp Leu Arg Leu Glu Asn Val Ile Ile  
 20 25 30  
 Arg Ala Gly Glu Ser Ala Ile Lys Glu Cys Ser Asn Ile Glu Ala Val  
 35 40 45  
 Asp Cys Arg Phe Glu Gly Asn Tyr Pro Phe Trp His Val His Gly Phe  
 50 55 60  
 Val Ile Asp Arg Cys Phe Phe Asp Val Gly Gly Arg Ser Ala Leu Trp  
 65 70 75 80  
 Tyr Ser Asp Asn Leu Lys Met Thr Asn Thr Arg Ile Asp Ala Pro Lys  
 85 90 95  
 Met Phe Arg Glu Met His Asp Ile Glu Ile Glu Asn Val Glu Ile Asn  
 100 105 110  
 Asp Ala Asp Glu Val Phe Trp Arg Cys Lys Asn Leu Asp Ile Lys Asn  
 115 120 125  
 Leu Lys Leu His Gly Gly Thr Tyr Pro Phe Met Phe Ser Ser Asn Ile  
 130 135 140  
 Arg Ile Asp Gly Leu Glu Ser Asp Ser Lys Tyr Val Phe Gln Tyr Val  
 145 150 155 160  
 Lys Asn Val Glu Leu Arg Asn Ala Lys Ile Thr Thr Lys Asp Ala Phe  
 165 170 175  
 Trp Glu Val Glu Asn Val Thr Ile Tyr Asp Ser Glu Leu Asn Gly Glu  
 180 185 190  
 Tyr Leu Gly Trp His Ser His Asn Leu Arg Leu Val Asn Cys His Ile  
 195 200 205  
 Thr Gly Glu Gln Pro Leu Cys Tyr Ala His Asp Leu Val Leu Glu Asn  
 210 215 220  
 Cys Thr Phe Gly Pro Asp Cys Asp Arg Ala Phe Glu Tyr Ser Ser Val  
 225 230 235 240  
 Gln Ala Thr Ile Lys Gly Ala Ile Gly Gly Val Lys Asn Pro Arg Thr  
 245 250 255  
 Gly Cys Ile Thr Ala Glu Ser Tyr Gly Glu Ile Ile Leu Asp Glu Asn  
 260 265 270  
 Ile Lys Ala Pro Ala Asp Cys Lys Leu Lys Leu Trp Asp Glu Lys Thr  
 275 280 285  
 Cys Phe Thr Asp  
 290

&lt;210&gt; 5411

<211> 287  
 <212> PRT  
 <213> B.fragilis

<400> 5411

Arg	Tyr	Tyr	Gly	Met	Asp	Phe	Lys	Glu	Leu	Asn	Asn	Gly	Val	Lys	Met
1				5					10					15	
Pro	Ile	Gln	Gly	Phe	Gly	Val	Phe	Gln	Ile	Pro	Asp	Ala	Thr	Glu	Cys
		20						25					30		
Glu	Arg	Val	Val	Thr	Asp	Ala	Leu	Ala	Val	Gly	Tyr	Arg	Leu	Ile	Asp
		35					40					45			
Thr	Ala	Ser	Val	Tyr	Gly	Asn	Glu	Arg	Ala	Val	Gly	Met	Ala	Ile	Arg
	50					55					60				
Lys	Ser	Gly	Ile	Pro	Arg	Glu	Glu	Leu	Phe	Ile	Thr	Thr	Lys	Ala	Trp
65					70					75					80
Ile	Ser	Glu	Met	Gly	Tyr	Glu	Arg	Thr	Leu	Arg	Ala	Leu	Asp	Thr	Ser
				85					90					95	
Leu	Ala	Arg	Leu	Gly	Leu	Asp	Tyr	Leu	Asp	Leu	Tyr	Leu	Ile	His	Met
			100					105					110		
Pro	Phe	Gly	Asp	Tyr	Tyr	Gly	Ala	Trp	Arg	Ala	Met	Glu	Lys	Leu	Tyr
		115					120					125			
Ala	Lys	Gly	Arg	Val	Arg	Ala	Ile	Gly	Val	Cys	Asn	Phe	Glu	Pro	Asp
		130					135					140			
Arg	Leu	Leu	Asp	Leu	Cys	His	Asn	Ala	Asn	Val	Ile	Pro	Ala	Val	Asn
145					150					155					160
Gln	Ile	Glu	Val	His	Pro	Tyr	Thr	Pro	Gln	Thr	Asp	Ala	Ile	Arg	Thr
				165					170					175	
Met	Gln	Glu	Leu	Gly	Ile	Gln	Ala	Glu	Ala	Trp	Gly	Pro	Leu	Ala	Glu
			180					185					190		
Gly	Arg	Asn	Gly	Leu	Phe	Thr	Asp	Asp	Ile	Leu	Thr	Gly	Ile	Ala	Arg
		195					200					205			
Lys	Tyr	Asp	Lys	Ser	Ala	Ala	Gln	Val	Val	Leu	Arg	Trp	His	Leu	Gln
	210					215					220				
Arg	Gly	Val	Val	Ala	Ile	Pro	Lys	Ser	Val	His	Arg	Gln	Arg	Met	Gln
225					230					235					240
Glu	Asn	Phe	Asn	Ile	Gly	Asp	Phe	Met	Leu	Thr	Pro	Glu	Asp	Met	Ala
			245						250					255	
Ala	Ile	Ala	Ser	Met	Asn	Met	Gly	Tyr	Asp	Met	Ile	Leu	Asp	Leu	His
			260					265					270		
Ala	Pro	Glu	Glu	Val	Gln	Arg	Leu	Tyr	Gly	Ile	Glu	Cys	Pro	Ala	
		275					280					285			

<210> 5412  
 <211> 227  
 <212> PRT  
 <213> B.fragilis

<400> 5412

Leu	Glu	Ile	Met	Ile	Lys	Ala	Ile	Gly	Leu	Thr	Lys	Ile	Phe	Arg	Thr
1				5					10					15	
Glu	Ser	Val	Gln	Thr	Ile	Ala	Leu	Asn	Glu	Ile	Ser	Ile	Asn	Ile	Ser
		20						25					30		
Glu	Gly	Glu	Phe	Val	Ala	Ile	Met	Gly	Pro	Ser	Gly	Cys	Gly	Lys	Ser
		35					40					45			
Thr	Leu	Leu	Asn	Ile	Leu	Gly	Leu	Leu	Asp	Asn	Pro	Thr	Ser	Gly	Glu
	50					55					60				
Leu	Trp	Phe	Ile	Gly	Lys	Glu	Val	Ser	Arg	Tyr	Ser	Glu	Asn	Asp	Arg
65					70					75					80
Thr	Asp	Met	Arg	Asn	Gly	Asn	Ile	Gly	Phe	Val	Phe	Gln	Ser	Phe	Asn



[illegible]

<400> 5413

Val	Asp	Tyr	Ile	Tyr	Leu	Cys	Asp	Thr	Ile	Tyr	Lys	Ala	Thr	Lys	Arg
1				5					10					15	
Asn	Met	Lys	Asp	Thr	Pro	Ile	Lys	Arg	His	Leu	Ile	Asp	Glu	Thr	Ile
			20					25					30		
Glu	Glu	Phe	Gln	Ile	Thr	Asp	Phe	Ser	Lys	Ala	Thr	Ile	Arg	Glu	Val
		35					40					45			
Lys	Ala	Ile	Ala	Ala	Lys	Ala	Glu	Thr	Ala	Ser	Gly	Val	Glu	Phe	Ile
	50					55				60					
Lys	Met	Glu	Met	Gly	Val	Pro	Gly	Leu	Pro	Pro	Ser	Thr	Val	Gly	Val
65					70				75						80
Lys	Ala	Glu	Ile	Glu	Ala	Leu	Gln	Asn	Gly	Ile	Ala	Ser	Leu	Tyr	Pro
				85					90					95	
Asp	Ile	Asn	Gly	Leu	Pro	Glu	Leu	Lys	Ser	Glu	Ala	Ser	Lys	Phe	Ile
			100					105					110		
Lys	Ala	Phe	Ile	Asp	Ile	Asp	Leu	Lys	Pro	Glu	Gly	Cys	Val	Pro	Val
		115					120					125			
Thr	Gly	Ser	Met	Gln	Gly	Thr	Phe	Ala	Ser	Phe	Leu	Thr	Cys	Ser	Gln
	130					135					140				
Cys	Asp	Glu	Lys	Lys	Asp	Thr	Ile	Leu	Phe	Ile	Asp	Pro	Gly	Phe	Pro
145				150					155					160	
Val	Gln	Lys	Gln	Gln	Leu	Val	Val	Met	Gly	Gln	Lys	Tyr	Glu	Thr	Phe
				165					170					175	
Asp	Val	Tyr	Asp	Tyr	Arg	Gly	Asp	Lys	Leu	Lys	Glu	Lys	Leu	Glu	Ser
			180				185						190		
Tyr	Leu	Lys	Lys	Gly	Asn	Ile	Ser	Ala	Val	Ile	Tyr	Ser	Asn	Pro	Asn
		195					200					205			
Asn	Pro	Ser	Trp	Ile	Cys	Leu	Lys	Asp	Glu	Glu	Leu	Lys	Ile	Ile	Gly
	210					215					220				
Glu	Leu	Ala	Thr	Gln	Tyr	Asp	Val	Ile	Val	Leu	Glu	Asp	Leu	Ala	Tyr
225				230						235				240	
Phe	Ala	Met	Asp	Phe	Arg	Gln	Asp	Leu	Ser	Thr	Pro	Tyr	His	Ala	Pro
				245					250					255	
Tyr	Gln	Pro	Ser	Val	Ala	His	Tyr	Thr	Asp	Asn	Tyr	Ile	Leu	Leu	Ile



210	215	220
Gln Thr Ile Ser Ser Asn Glu His Ser Arg Ile Phe Val Phe Asp Asp		
225	230	235
Trp Met Ser Arg Gln Asn Phe Phe Lys Gln Phe Leu Ser Gly Ile Phe		240
	245	250
Ile Val Ile Val Met Thr Gly Leu Asp Gln Asp Met Met Gln Lys Asn		255
	260	265
Leu Ser Cys Arg Ser Leu Arg Asp Ala Gln Lys Asn Met Tyr Cys Tyr		270
	275	280
Gly Phe Ala Phe Ala Pro Leu Asn Leu Leu Phe Leu Gly Leu Gly Ile		285
	290	295
Leu Leu Leu Val Leu Ala Gln Glu Met Gln Leu Glu Leu Pro Ala Ala		300
305	310	315
Gly Asp Asp Ile Leu Pro Leu Phe Ala Thr Gln Gly Tyr Leu Gly Glu		320
	325	330
Gly Val Leu Ile Leu Phe Thr Ile Gly Ile Ile Ala Ala Ala Phe Ser		335
	340	345
Asn Ser Asp Ser Ala Leu Thr Ala Met Thr Thr Ser Phe Cys Ile Asp		350
	355	360
Leu Leu Asp Thr Gly Lys Asp Thr Glu Glu Glu Ala Arg Arg Lys Arg		365
	370	375
Asn Arg Val His Ile Gly Leu Ser Val Leu Leu Ile Phe Phe Ile Cys		380
385	390	395
Leu Val Asp Ala Leu Asn Asn Gln Ser Val Ile Asp Ala Ile Tyr Ile		400
	405	410
Ile Ala Ser Tyr Thr Tyr Gly Pro Leu Leu Gly Met Phe Ala Phe Gly		415
	420	425
Leu Phe Thr Gln Arg Lys Thr Asn Asp Arg Trp Val Pro Phe Ile Ala		430
	435	440
Ile Ala Ser Pro Leu Ile Cys Tyr Ala Ala Asp Arg Phe Ala Arg Gln		445
	450	455
Glu Thr Gly Tyr Gln Phe Gly Tyr Glu Leu Leu Met Leu Asn Gly Ile		460
465	470	475
Leu Thr Phe Ala Gly Ile Trp Ile Val Ser Lys Lys Gln Leu Lys Asn		480
	485	490
Glu Phe		495

<210> 5415  
 <211> 141  
 <212> PRT  
 <213> B.fragilis

<400> 5415  
 Tyr Pro Thr Ile Gly Arg Gln Pro Arg Pro Ile Ala Asp Thr Ser Ser  
 1 5 10 15  
 Ser Pro Ser Leu Arg Tyr Ser Ile Val Ser Pro Ala Phe Gly Val Phe  
 20 25 30  
 Leu Ser Asp Lys Phe Pro Asp Lys Glu Glu Ile Gly Gly Ser Val Asn  
 35 40 45  
 Thr Arg Glu Thr Pro Val Val Ala Pro Ala Ala Ser Ser Ala Lys Leu  
 50 55 60  
 Asp Ala Val Leu Lys Lys Phe Leu Arg Ser Ile Ile Phe Tyr Phe Phe  
 65 70 75 80  
 Ile Val His Phe Met Ile Ala Asn Leu Pro Arg Leu Asn Lys Ser Ala  
 85 90 95  
 Cys Ile Arg Phe Thr Asp Ile Tyr Thr Arg Ile Leu Glu Ile Val His  
 100 105 110  
 Glu Leu Arg Phe Pro Ser Ile Gln Tyr Phe Ser Phe Leu Phe Lys Lys

	115		120		125
Ile Met Gly Leu Ala Pro Asn Glu Tyr Arg Leu Ile Asn					
130		135		140	

<210> 5416  
 <211> 164  
 <212> PRT  
 <213> B.fragilis

<400> 5416

His Cys Asn Met Phe Ala Thr Trp Leu Gln Glu Ile Tyr Ser Ile Phe														
1		5					10					15		
Val Pro Lys Val Lys Thr Lys Gln Met Lys Arg Ile Phe Phe Val Tyr														
	20					25					30			
Pro Leu Ala Ile Ala Thr Leu Phe Leu Ile Val Leu Ser Ala Ile Pro														
	35					40					45			
His His His His Lys Glu Met Met Cys Thr Val Met Glu Leu Cys Glu														
	50				55					60				
Gln Asp Asp Ile Tyr Asn Asp Gly His Thr Asp His Glu Ala Gly Gln														
65				70					75					80
Asp Ala His Asn Glu Asn Thr Cys Val Ser Gln Ala Gly Tyr Ile Phe														
		85					90						95	
Pro Ser Ser Val Asp Lys Ser Asn Leu His Asp Gly Ser Leu Met Asn														
	100						105						110	
Ile His Leu Pro Val Leu Tyr Leu Phe Ala Asp Ile Leu Thr Ile His														
	115						120					125		
Phe Asp Ile Pro Ile Ser Glu Asn Thr Tyr Asp Arg Tyr Val Val Ser														
	130					135				140				
Tyr Thr Ser Val Val Leu Gly Glu Ser Ser Gly Leu Arg Ala Pro Pro														
145				150				155						160
Tyr Phe Phe Ser														

<210> 5417  
 <211> 199  
 <212> PRT  
 <213> B.fragilis

<400> 5417

Ile Arg Gly Met Asn Ile Asn Thr Asp Ile Phe Lys Ile Gln Ser Asn														
1		5					10					15		
Asn Val Met Pro Ser Arg Gly Lys Ile Leu Ile Ser Glu Pro Phe Leu														
	20						25					30		
His Asp Val Thr Phe Gly Arg Ser Val Val Leu Leu Val Asp His Thr														
	35					40						45		
Glu Glu Gly Ser Met Gly Leu Ile Ile Asn Lys Pro Leu Pro Leu Met														
	50				55					60				
Leu Asn Asp Ile Ile Lys Glu Phe Lys Tyr Ile Glu Asp Ile Pro Leu														
65				70					75					80
His Lys Gly Gly Pro Ile Gly Thr Asp Thr Leu Phe Tyr Leu His Thr														
		85					90						95	
Leu His Glu Ile Pro Gly Thr Leu Pro Ile Asn Asn Gly Leu Tyr Leu														
	100						105						110	
Asn Gly Asp Phe Asp Ala Ile Lys Tyr Ile Leu Gln Gly Asn Pro														
	115					120						125		
Ile Lys Gly Lys Ile Arg Phe Phe Leu Gly Tyr Ser Gly Trp Glu Cys														
	130					135				140				
Glu Gln Leu Ile Gln Glu Ile Lys Glu Asn Thr Trp Ile Ile Ser Lys														
145				150				155						160

<400> 5420																
Lys	Thr	Lys	Phe	Met	Asp	Leu	Lys	Lys	Thr	Thr	Phe	Tyr	Leu	Phe	Thr	
1				5					10					15		
Leu	Phe	Ser	Leu	Met	Leu	Ile	Ser	Cys	Ser	Asn	Asp	Asp	Glu	Asn	Lys	
			20					25					30			
Asn	Asp	Ala	Gln	Val	Thr	Val	Thr	Val	Val	Ser	Ala	Asp	Gly	Lys	Pro	
		35					40					45				
Leu	Pro	Asn	Glu	Ile	Val	Gln	Met	Phe	Asp	Glu	Lys	Thr	Tyr	Glu	Glu	
	50					55					60					
Phe	Lys	Lys	Asp	Asn	Arg	Thr	Thr	Pro	Thr	Ala	Tyr	Ala	Leu	Thr	Asn	
65				70						75					80	

[illegible]



Leu	Pro	Val	Ala	Gln	Phe	Pro	Glu	Ile	Thr	Pro	Pro	Thr	Val	Gln	Val
50						55				60					
Ser	Ala	Phe	Tyr	Pro	Gly	Ala	Asn	Ala	Glu	Thr	Val	Ala	Gln	Thr	Val
65					70				75					80	
Gly	Ile	Pro	Ile	Glu	Gln	Gln	Val	Asn	Gly	Val	Asp	Gly	Met	Leu	Tyr
				85					90					95	
Met	Ser	Ser	Thr	Ala	Ser	Ser	Ser	Gly	Ala	Tyr	Ser	Leu	Thr	Ile	Thr
			100					105					110		
Phe	Ala	Val	Gly	Thr	Asp	Ile	Asp	Met	Ala	Thr	Val	Gln	Val	Gln	Asn
		115					120					125			
Arg	Val	Ser	Val	Ala	Gln	Ser	Ser	Leu	Pro	Glu	Pro	Val	Ile	Val	Gln
						135					140				
Gly	Val	Thr	Val	Gln	Lys	Gln	Ser	Ser	Asn	Ile	Val	Met	Phe	Leu	Thr
145					150				155					160	
Met	Gln	Ala	Gln	Asp	Ser	Val	Tyr	Asp	Gly	Leu	Tyr	Leu	Thr	Asn	Tyr
				165					170					175	
Ala	Gln	Leu	Asn	Leu	Val	Asp	Gln	Leu	Thr	Arg	Val	Pro	Gly	Val	Gly
			180					185					190		
Ala	Val	Asn	Val	Met	Gly	Ala	Gly	Asn	Tyr	Ser	Met	Arg	Val	Trp	Leu
		195					200					205			
Asp	Pro	Glu	Ala	Met	Arg	Ile	Arg	Asn	Leu	Ser	Pro	Ala	Gln	Ile	Tyr
		210				215					220				
Gln	Ala	Ile	Gln	Ser	Gln	Asn	Ile	Glu	Val	Ser	Ala	Gly	Tyr	Ile	Gly
225					230					235				240	
Gln	Pro	Ile	Gly	Lys	Asn	Asn	Asn	Asn	Ala	Tyr	Gln	Tyr	Thr	Leu	Asn
				245					250					255	
Val	Gln	Gly	Arg	Leu	Thr	Ser	Pro	Glu	Glu	Phe	Gly	Asn	Ile	Ile	Ile
			260					265					270		
Arg	Thr	Glu	Glu	Gly	Gly	Lys	Met	Leu	Arg	Leu	Lys	Asp	Val	Ala	Arg
		275					280					285			
Ile	Asp	Leu	Gly	Ser	Ser	Ser	Tyr	Asn	Val	Val	Ser	Lys	Leu	Lys	Gly
		290				295					300				
His	Pro	Thr	Ala	Ala	Ile	Ala	Ile	Tyr	Gln	Gln	Pro	Gly	Ser	Asn	Ser
305					310					315				320	
Leu	Asp	Val	Ser	Lys	Gly	Val	Lys	Ala	Lys	Met	Gln	Glu	Leu	Ala	Gln
				325					330					335	
Asn	Phe	Pro	Ala	Gly	Val	Ser	Tyr	Asn	Val	Thr	Leu	Asp	Thr	Thr	Asp
			340					345					350		
Val	Ile	Asn	Ala	Ser	Ile	Asp	Glu	Val	Leu	Val	Thr	Phe	Leu	Glu	Thr
		355					360					365			
Thr	Leu	Leu	Val	Val	Leu	Val	Ile	Phe	Leu	Phe	Leu	Gln	Asn	Trp	Arg
					375						380				
Ala	Val	Ile	Ile	Pro	Cys	Ile	Thr	Ile	Pro	Val	Ser	Leu	Ile	Gly	Thr
385					390					395				400	
Leu	Ala	Val	Met	Ala	Ala	Leu	Gly	Phe	Ser	Ile	Asn	Thr	Leu	Thr	Leu
				405					410					415	
Phe	Gly	Leu	Ile	Leu	Ala	Val	Ala	Ile	Val	Val	Asp	Asp	Ala	Ile	Val
			420					425					430		
Val	Val	Glu	Asn	Ala	Ser	Arg	Leu	Leu	Glu	Thr	Gly	Gln	Tyr	Ser	Pro
		435					440					445			
Lys	Glu	Ala	Val	Thr	Lys	Ala	Met	Gly	Glu	Ile	Thr	Gly	Pro	Ile	Val
		450				455					460				
Gly	Val	Val	Leu	Val	Leu	Ala	Val	Phe	Ile	Pro	Thr	Thr	Leu	Ile	
465					470				475					480	
Ser	Gly	Ile	Ser	Gly	Gln	Leu	Tyr	Lys	Gln	Phe	Ala	Leu	Thr	Ile	Ala
				485					490					495	
Ala	Ser	Thr	Val	Leu	Ser	Gly	Ile	Asn	Ser	Leu	Thr	Leu	Thr	Pro	Ala
			500					505					510		
Leu	Cys	Ala	Leu	Phe	Leu	Glu	His	Asn	Lys	Pro	Ser	Asn	Phe	Phe	Ile

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	515		520		525
Tyr	Lys Gly Phe Asn Lys Val Tyr Asp Lys Thr Gln Asn Leu Tyr Asp				
	530		535		540
Arg	Ile Val Lys Gly Leu Leu Val Arg Pro Gly Leu Ala Leu Ile Ser				
545		550		555	560
Tyr	Gly Ile Ile Thr Ala Val Ala Val Ile Leu Phe Met Lys Trp Pro				
	565		570		575
Ser	Thr Phe Val Pro Asp Glu Asp Asp Gly Tyr Phe Ile Ala Val Ile				
	580		585		590
Gln	Leu Pro Pro Ala Ser Ser Leu Glu Arg Thr Gln Ala Val Gly Arg				
	595		600		605
Lys	Val Asn Gln Ile Leu Asp Ser Tyr Pro Glu Val Lys Asp Tyr Ile				
	610		615		620
Gly	Ile Ser Gly Phe Ser Ile Met Gly Gly Gly Glu Gln Ser Asn Thr				
625		630		635	640
Gly	Thr Tyr Phe Val Val Leu Lys Asn Trp Asp Gln Arg Lys Gly Lys				
	645		650		655
Glu	His Thr Ala Ala Ala Val Val Glu Arg Phe Asn Glu Met Ala Tyr				
	660		665		670
Gly	Ile Gln Glu Ala Gln Ile Phe Ala Met Val Pro Pro Ala Ile Pro				
	675		680		685
Gly	Leu Gly Ala Ser Gly Gly Leu Gln Leu Gln Leu Glu Asp Arg Asn				
690		695		700	
Asn	Leu Gly Pro Thr Glu Met Gln Arg Ala Val Glu Thr Leu Met Ala				
705		710		715	720
Thr	Tyr His Thr Gln Pro Ala Leu Ala Ser Ile Ser Ser Met Tyr Gln				
	725		730		735
Ala	Asn Val Pro Gln Tyr Phe Leu Asn Ile Asp Arg Asp Lys Val Gln				
	740		745		750
Phe	Met Gly Ile Gln Leu Asp Asn Val Phe Ser Thr Leu Ser Tyr Tyr				
	755		760		765
Met	Gly Ala Ala Tyr Val Asn Asp Phe Val Gln Phe Gly Arg Ile Tyr				
	770		775		780
Gln	Val Lys Ile Glu Ala Gly Glu Gln Ala Gln Lys Val Ile Asp Asp				
785		790		795	800
Val	Leu Lys Leu Ser Val Pro Asn Ala Lys Gly Asp Met Val Pro Phe				
	805		810		815
Ser	Ser Phe Thr Lys Val Glu Glu Arg Leu Gly Met Asp Gln Ile Ser				
	820		825		830
Arg	Tyr Asn Met Tyr Ser Thr Ala Ser Ile Thr Cys Asn Val Ala Ser				
	835		840		845
Gly	Ser Ser Ser Gly Glu Gly Ile Gln Gln Met Glu Asp Leu Ile Lys				
	850		855		860
Glu	Gln Leu Gly Asn Glu Phe Gly Tyr Glu Trp Thr Ser Val Ala Tyr				
865		870		875	880
Gln	Glu Thr Gln Ala Gly Asn Thr Thr Thr Ile Val Phe Ile Met Ala				
	885		890		895
Leu	Leu Val Ala Phe Leu Val Leu Ala Ala Gln Tyr Glu Ser Trp Thr				
	900		905		910
Ser	Pro Leu Ser Ala Ile Met Gly Leu Pro Met Ala Leu Leu Gly Ala				
	915		920		925
Met	Ile Gly Cys Ser Val Met Gly Thr Pro Val Ser Ile Tyr Thr Gln				
	930		935		940
Ile	Gly Ile Ile Leu Leu Ile Ala Leu Ser Ala Lys Asn Gly Ile Leu				
945		950		955	960
Ile	Val Glu Phe Ala Arg Asp Phe Arg Ala Glu Gly Asn Ser Ile Arg				
	965		970		975
Asp	Ala Ala Tyr Glu Ala Gly His Val Arg Leu Arg Pro Ile Leu Met				
	980		985		990



Thr Ser Phe Ala Phe Val Leu Gly Val Met Pro Leu Leu Phe Ala Thr  
 995 1000 1005  
 Gly Ala Gly Ala Gln Ser Arg Ile Ala Leu Gly Ala Ala Val Val Phe  
 1010 1015 1020  
 Gly Met Ala Leu Asn Thr Leu Leu Ala Thr Ile Tyr Ile Pro Asn Phe  
 1025 1030 1035 1040  
 Tyr Glu Leu Met Gln Lys Phe Gln Glu Asn Ile Leu Asp Arg Lys Lys  
 1045 1050 1055  
 Lys Lys

<210> 5424  
 <211> 149  
 <212> PRT  
 <213> B.fragilis

<400> 5424

Met Leu Ser Leu Asn Leu Pro Val Phe Asp Thr Lys Ile Ala Thr Arg  
 1 5 10 15  
 Asn Gly Lys Asn Val Ile Phe Asp Val Ile Arg Arg Arg Tyr Val Ala  
 20 25 30  
 Leu Thr Pro Glu Glu Trp Val Arg Gln His Phe Val His Phe Leu Ile  
 35 40 45  
 Val His Lys Gly Tyr Pro Ser Ser Leu Met Ala Asn Glu Val Leu Leu  
 50 55 60  
 Asn Leu Asn Gly Thr Lys Lys Arg Cys Asp Thr Val Leu Tyr Lys Arg  
 65 70 75 80  
 Asp Leu Ser Ala Arg Met Ile Val Glu Tyr Lys Ala Pro His Ile Glu  
 85 90 95  
 Ile Thr Gln Ala Val Phe Asp Gln Ile Thr Arg Tyr Asn Met Val Leu  
 100 105 110  
 Lys Val Asp Tyr Leu Val Val Ser Asn Gly Met Gln His Tyr Cys Cys  
 115 120 125  
 Arg Met Asp Tyr Asp Thr Gln Ser Tyr Ser Phe Leu Ser Asp Ile Pro  
 130 135 140  
 Asp Tyr Asp Ala Leu  
 145

<210> 5425  
 <211> 141  
 <212> PRT  
 <213> B.fragilis

<400> 5425

Arg Leu Lys Pro Met Lys Ala Phe Leu Pro Leu Leu Leu Ser Phe Phe  
 1 5 10 15  
 Phe Ile Ile Ser Cys Gln Gln His Lys Glu Ala Thr Ile Ser Pro Ile  
 20 25 30  
 Asp Glu Glu Asp Glu Leu Gln Glu Glu Ala Asp Ser Leu Pro Arg Ala  
 35 40 45  
 Thr Ala Ile Phe Trp Leu Asp Lys Tyr His Met Lys Glu Leu Lys Lys  
 50 55 60  
 Asp Asp Val Leu Thr Phe Arg Thr Ala Lys Ala Lys Val Ile Ile Arg  
 65 70 75 80  
 Asn Asp Gly Thr Ile Glu Leu Leu Ser Phe Val Glu Gln Gln Pro Gly  
 85 90 95  
 Asn Ala Gln Arg Tyr Ile Arg Tyr Arg Leu Lys Asp Phe Lys Val Lys  
 100 105 110  
 Lys Ile Leu Met Asp Asn Gly Tyr Ile Asn Pro Gly Glu Gln Tyr Val

	115		120		125
Gln	Leu Arg Tyr Ile Pro Ala	Leu Ala Arg Arg Val	Lys		
	130	135	140		

<210> 5426  
 <211> 353  
 <212> PRT  
 <213> B.fragilis

<400> 5426

Met	Met	Glu	Pro	Thr	Cys	Met	Ser	Glu	Asn	Lys	Lys	Lys	Ile	Ile	Phe
1				5					10					15	
Ile	Val	Asn	Pro	Ile	Ser	Gly	Thr	Gln	Ser	Lys	Glu	Leu	Val	Leu	Ser
			20					25					30		
Leu	Leu	Asp	Glu	Lys	Ile	Asp	Lys	Glu	Met	Tyr	Thr	Trp	Glu	Ile	Val
		35					40					45			
Tyr	Thr	Glu	Arg	Ala	Gly	His	Ala	Ile	Glu	Ile	Ala	Ala	Asp	Ala	Ala
	50					55					60				
Asp	Lys	Asn	Thr	Asp	Ile	Val	Val	Ala	Val	Gly	Gly	Asp	Gly	Thr	Ile
65					70					75				80	
Asn	Glu	Ile	Ala	Arg	Ser	Leu	Val	His	Thr	Asn	Thr	Ala	Leu	Gly	Ile
				85					90					95	
Ile	Pro	Cys	Gly	Ser	Gly	Asn	Gly	Leu	Ala	Arg	His	Leu	Gln	Ile	Ser
			100					105					110		
Met	Asp	Pro	Arg	Lys	Ala	Leu	Glu	Ile	Leu	Asn	Asp	Gly	Ile	Ile	Asp
		115					120					125			
Ile	Ile	Asp	Tyr	Gly	Lys	Ile	Asn	Gly	Thr	Asp	Phe	Phe	Cys	Thr	Cys
	130					135					140				
Gly	Val	Gly	Phe	Asp	Ala	Phe	Val	Ser	Leu	Lys	Phe	Ala	Asn	Ala	Gly
145					150					155				160	
Lys	Arg	Gly	Leu	Leu	Thr	Tyr	Leu	Glu	Lys	Thr	Leu	Gln	Glu	Ser	Leu
				165					170					175	
Lys	Tyr	Gln	Pro	Glu	Thr	Tyr	Glu	Leu	Glu	Thr	Glu	Asp	Gly	Thr	Ser
			180				185						190		
Lys	Tyr	Lys	Ala	Phe	Leu	Ile	Ala	Cys	Gly	Asn	Ala	Ser	Gln	Tyr	Gly
		195					200					205			
Asn	Asn	Ala	Tyr	Ile	Ala	Pro	Gln	Ala	Thr	Leu	Thr	Asp	Gly	Leu	Leu
	210					215						220			
Asp	Val	Thr	Ile	Leu	Glu	Pro	Phe	Thr	Val	Leu	Asp	Val	Pro	Ala	Leu
225					230					235				240	
Ala	Phe	Gln	Leu	Phe	Asn	Lys	Thr	Ile	Asp	Gln	Asn	Ser	Arg	Ile	Lys
				245					250					255	
Thr	Phe	Arg	Cys	Lys	Lys	Leu	Cys	Ile	His	Arg	Ser	Ser	Pro	Gly	Val
			260					265					270		
Val	His	Phe	Asp	Gly	Asp	Pro	Met	Gln	Ala	Asp	Glu	Asp	Ile	Lys	Ile
		275					280					285			
Glu	Leu	Ile	Gln	Lys	Gly	Leu	Arg	Val	Val	Val	Pro	Gly	Asp	Lys	Lys
	290					295					300				
Lys	Asp	Asn	Pro	Asn	Val	Leu	Gln	Lys	Ala	Gln	Glu	Tyr	Val	Asn	Gly
305					310					315				320	
Ile	Lys	Leu	Ile	Asn	Glu	Ala	Ile	Val	Glu	Asp	Ile	Ala	His	Lys	Asn
				325					330					335	
Lys	Val	Ile	Leu	Lys	Lys	Asn	Lys	Gln	Leu	Ile	Gln	Lys	Leu	Thr	Lys
			340					345					350		

Lys

<210> 5427  
 <211> 316

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5427

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Met Ile Met Pro Lys Asn Tyr Thr Leu Gln Asn Ala Ser Asn Leu Gly
1      5      10      15
Trp Leu Phe Tyr Lys Asp Tyr Tyr Arg Gln Glu Pro Asn Val Asp Phe
20      25      30
Ile Ser Thr Gln Gly Lys Glu Ser Asp Thr Thr Ala Asp Phe Phe Arg
35      40      45
Lys Thr Asn Gln Arg Ile Thr Ala Tyr Gln Leu Asn Ser Glu Ser Pro
50      55      60
Leu Val Ala Ala Phe Asn Asn His Phe Gly Thr Pro Leu Gln Leu Lys
65      70      75      80
Thr Ile Tyr Pro Gly Leu Ile Thr Gly Ser Gly Leu Pro His Gln Thr
85      90      95
Gly Ser Lys Gly Glu Phe Lys Leu Gly Phe Gln Phe Asp Tyr Thr Thr
100     105     110
Gly Leu Pro Tyr Ile Pro Gly Ser Ser Ile Lys Gly Thr Leu Arg Ser
115     120     125
Met Phe Pro Phe Ser Leu Lys Asp Lys Gly Ser Thr Lys Arg Ile Leu
130     135     140
Pro Glu Tyr Arg Lys Glu Arg Met Glu Tyr Ile Arg Asp Leu Ile Ile
145     150     155     160
Glu Val Thr Asn Ile Asn Glu Ile Ser Asp Thr Glu Ile Gln Ala Leu
165     170     175
Glu Tyr Ala Ile Phe Thr Asn Ser Thr Pro Ser Gly Lys Thr Ile Glu
180     185     190
Phe Ser Leu Glu Glu Lys Asp Val Phe Tyr Asp Ala Phe Val Ala Asp
195     200     205
Ser Lys Asp Gly Val Met Leu Ser Asp Asp Tyr Ile Thr Pro His Gly
210     215     220
Glu Asn Pro Leu Lys Asp Pro Lys Pro Ile Leu Phe Leu Lys Ile Arg
225     230     235     240
Pro Asp Val Thr Ile Asn Phe Tyr Phe Lys Leu Cys Thr Thr His Leu
245     250     255
Tyr Lys Glu Lys Val Cys Ser Ser Lys Gln Ile Glu Glu Ile Lys Lys
260     265     270
Gln Asn Asp Phe Ser Ser Ser Asp Tyr Lys Met Ile Thr Ala His Gln
275     280     285
Lys Arg Asn Leu Phe Glu Lys Ile Leu Leu Cys Ile Gly Ile Gly Ala
290     295     300
Lys Thr Asn Ile Gly Tyr Gly Gln Leu Lys Lys Leu
305     310     315

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&lt;210&gt; 5428

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5428

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Gly Glu Lys Phe Arg His Asn Gly Leu Asp Lys Ile Val Met Asp Phe
1      5      10      15
Gly Ile Ala Phe Asn Ile Gly Lys Met Ile Asn Lys Gln Glu Lys Lys
20      25      30
Lys Arg Gly Arg Thr Asn Leu Leu Val Thr Ile Leu Ile Ser Cys Gly
35      40      45
Ile Ala Tyr Gln Lys Tyr Thr Lys Ala Ile Ile Leu Arg Gly Cys Pro
50      55      60

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Lys Ser Lys Val Pro Pro Lys Ser Arg Ile Ala Pro Phe Thr Ile Val  
 65 70 75 80  
 Tyr Phe Gly Glu Lys Pro His Ile Thr Val Val Lys Asn  
 85 90

<210> 5429

<211> 134

<212> PRT

<213> B.fragilis

<400> 5429

Leu Ile Asp Thr Ile Arg Asn Met His Ile Ser His Ile Ala Ile Trp  
 1 5 10 15  
 Thr Thr Arg Leu Glu Glu Leu Arg Asn Phe Tyr Ile Thr Tyr Phe Asn  
 20 25 30  
 Gly Thr Ser Asn Glu Lys Tyr Ile Asn Pro Lys Lys Gly Phe Glu Ser  
 35 40 45  
 Tyr Phe Ile Ser Phe Asp Gln Gly Phe Ala Ser Leu Glu Ile Met Gln  
 50 55 60  
 Arg Glu Asp Ile Thr Thr Pro Ala Leu Lys Asp Cys Leu Gly Leu Ala  
 65 70 75 80  
 His Phe Ser Phe Ser Val Gly Ser Lys Glu Ala Val Leu Glu Leu Thr  
 85 90 95  
 Glu Gln Leu Arg Lys Asp Gly Phe Val Ile Glu Ser Glu Pro Arg Thr  
 100 105 110  
 Thr Gly Asp Gly Tyr Phe Glu Ser Ala Ile Leu Asp Pro Glu Gly Asn  
 115 120 125  
 Ile Val Glu Ile Thr Ile  
 130

<210> 5430

<211> 236

<212> PRT

<213> B.fragilis

<400> 5430

Leu Arg Val Thr Leu Asp Arg Val Ile Glu Asp Lys Glu Leu Gly Arg  
 1 5 10 15  
 Leu Val Val Arg Asp Asn Val Arg Ala Lys Arg Leu Val Phe Arg Thr  
 20 25 30  
 Lys Ala Asp Ala Ile Tyr Ile Ser Ile Pro Leu Gly Val Thr Met Arg  
 35 40 45  
 Glu Val Lys Glu Ala Ile Glu Lys Leu Arg Pro Arg Leu Leu Asp Ser  
 50 55 60  
 Arg Gln Lys Leu Val Arg Pro Leu Ile Asp Leu Asn Tyr Arg Ile Glu  
 65 70 75 80  
 Thr Glu Tyr Phe Lys Leu Ser Leu Val Ser Gly Lys Arg Glu Arg Phe  
 85 90 95  
 Leu Ala His Ser Glu Leu Gly Glu Met Arg Ile Ile Cys Pro Pro Thr  
 100 105 110  
 Ala Asp Phe Thr Asp Ser Asn Leu Gln Asp Trp Leu Arg Lys Val Ile  
 115 120 125  
 Glu Glu Ala Leu Arg Arg Asn Ala Lys Ile Ile Leu Pro Pro Arg Leu  
 130 135 140  
 Tyr Met Leu Ser Glu Lys His Arg Leu Pro Tyr Glu Ser Val Gln Ile  
 145 150 155 160  
 Asn Ser Ser Arg Gly Arg Trp Gly Ser Cys Ser Ser Arg Lys Lys Ile  
 165 170 175  
 Asn Leu Ser Tyr Phe Leu Val Leu Leu Pro Lys His Leu Ile Asp Tyr



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Ser Ser Ile Lys Lys Leu Ile Cys Glu Leu Val Thr Asn Leu Ser Ile
 210                215                220
Asp Pro Ile Ile Asp Asp Arg Met Phe Val Ala Thr Trp Tyr Lys Asn
225                230                235                240
Asn Gln Leu Ser Gln Gln Phe Thr Asn Asn Ala Lys Ala Tyr Phe Asp
                245                250                255
Ser Gln Asp Pro Phe Ser Asp Tyr Trp Tyr Arg Phe Leu Phe Ile Asp
                260                265                270
Gly Ser Asn Ala Thr Cys Gln Asn Glu Lys Met Lys Lys Glu Leu Leu
                275                280                285
Glu Glu His Thr Tyr Tyr Arg Trp Gln Gln Trp Ser Ser Leu Tyr Gly
290                295                300
Ile Ser Lys Tyr Ser Leu Val Tyr Leu Thr Asn Asn Glu Val Pro Asp
305                310                315                320
Tyr Leu Ile Glu Tyr Phe Gln Thr Ile Tyr Ala Arg Met Ala Glu Leu
                325                330                335
Val Leu Val Gln Arg Ala Ser Met Leu Arg Phe Ser Gly Glu Ile Thr
                340                345                350
Lys Val Ser Gln Leu Ser Asn Gln Asp Val Glu Ala Val Ser Lys Arg
                355                360                365
Val Ser Ser Leu Tyr Lys Glu Tyr Ile Arg Phe Val Asn Gln Ile Tyr
370                375                380
Phe Arg Glu Ile Thr Ala Gln Asp Gln Gly Ile Glu Met Tyr Asn Lys
385                390                395                400
Leu His Ser Cys Leu Gln Met Glu Ser Tyr Ile Lys Asp Leu Asp Gly
                405                410                415
Glu Ile Glu Glu Leu His Gln Tyr Ile Ser Leu Met Glu Asp Arg Glu
                420                425                430
Arg Asn Lys Lys Ala Ser Leu Leu Asn Asp Ile Ala Thr Leu Phe Leu
                435                440                445
Pro Ile Thr Val Ile Thr Gly Phe Trp Gly Met Asn Gln Ile Ser Glu
                450                455                460
Val Met Glu Glu Asn Gly Glu Leu Ser Thr Gly Phe Ile Ile Gln Ser
465                470                475                480
Leu Leu Leu Ile Ile Gly Thr Leu Cys Ala Ile Cys Ile Ile Tyr Lys
                485                490                495
Arg Lys Arg Lys Leu
                500

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&lt;210&gt; 5433

&lt;211&gt; 265

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5433

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Tyr Met Gly Thr Ile Asp Ile Ser Tyr Phe Asn Leu Leu Ile Gly Leu
1                5                10                15
Leu Leu Leu Val Ile Pro Leu Phe Tyr Leu Trp Lys Phe Lys Thr Gly
                20                25                30
Leu Leu Lys Ala Thr Leu Ile Gly Thr Ala Arg Met Ile Val Gln Leu
                35                40                45
Phe Leu Ile Gly Met Tyr Leu Lys Tyr Leu Phe Leu Trp Asn Asn Pro
50                55                60
Trp Ile Asn Phe Leu Trp Val Ile Ile Met Ile Phe Val Ala Gly Gln
65                70                75                80
Thr Ala Leu Val Arg Thr Gly Leu Lys Arg Glu Ile Leu Leu Ile Pro
                85                90                95
Ile Ser Val Gly Phe Leu Cys Ser Val Val Leu Val Gly Met Tyr Phe
                100                105                110

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Ile Gly Ile Val Leu Gln Leu Asp Asn Val Phe Ser Ala Gln Tyr Phe  
           115                  120          125  
 Ile Pro Ile Phe Gly Ile Leu Met Gly Asn Met Leu Ser Ser Asn Val  
       130                  135          140  
 Ile Ala Leu Asn Thr Tyr Tyr Ser Gly Leu Lys Arg Glu Gln Gln Leu  
 145                  150          155          160  
 Tyr Cys Tyr Leu Leu Gly Asn Gly Ala Thr Arg Gln Glu Ala Gln Ala  
           165                  170          175  
 Pro Phe Ile Arg Glu Ala Ile Ile Lys Ser Phe Ser Pro Leu Ile Ala  
           180                  185          190  
 Asn Ile Ala Val Met Gly Leu Val Ala Leu Pro Gly Thr Met Ile Gly  
       195                  200          205  
 Gln Ile Leu Gly Gly Ser Ser Pro Asn Val Ala Ile Lys Tyr Gln Met  
       210                  215          220  
 Met Ile Met Val Ile Thr Phe Thr Ala Ser Met Leu Ser Leu Met Ile  
 225                  230          235          240  
 Thr Ile Ser Leu Ala Ser Arg Lys Ser Phe Asp Glu Tyr Gly Arg Ile  
           245                  250          255  
 Leu Gln Val Thr Lys Glu Ser Gln Lys  
           260                  265

<210> 5434

<211> 667

<212> PRT

<213> B.fragilis

<400> 5434

Glu Tyr Met Thr Val Lys Glu Lys Ile Glu Gln Leu Arg Leu Gln Leu  
 1                  5          10          15  
 His Gln His Asn Tyr Asn Tyr Tyr Val Leu Asn Ala Pro Glu Ile Ser  
           20                  25          30  
 Asp Lys Glu Phe Asp Asp Leu Met Arg Glu Leu Gln Asp Leu Glu Gln  
           35                  40          45  
 Glu His Pro Glu Tyr Lys Asp Glu Asn Ser Pro Thr Met Arg Val Gly  
       50                  55          60  
 Ser Asp Ile Asn Lys Asn Phe Thr Gln Val Ala His Lys Tyr Pro Met  
 65                  70          75          80  
 Leu Ser Leu Ser Asn Thr Tyr Ser Glu Asn Glu Val Thr Asp Phe Tyr  
           85                  90          95  
 Asp Arg Val Arg Lys Ala Leu Asn Glu Asp Phe Glu Ile Cys Cys Glu  
           100                  105          110  
 Met Lys Tyr Asp Gly Thr Ser Ile Ser Leu Thr Tyr Glu Asn Gly Lys  
       115                  120          125  
 Leu Ile Arg Ala Val Thr Arg Gly Asp Gly Glu Lys Gly Asp Asp Val  
       130                  135          140  
 Thr Asp Asn Val Lys Thr Ile Arg Ser Ile Pro Leu Val Leu His Gly  
 145                  150          155          160  
 Asp Asn Tyr Pro Glu Val Phe Glu Ile Arg Gly Glu Ile Leu Met Pro  
           165                  170          175  
 Trp Glu Val Phe Glu Ala Leu Asn Arg Glu Lys Glu Ala Arg Glu Glu  
           180                  185          190  
 Pro Leu Phe Ala Asn Pro Arg Asn Ala Ala Ser Gly Thr Leu Lys Leu  
       195                  200          205  
 Gln Asn Ser Ala Ile Val Ala Ser Arg Lys Leu Asp Ala Tyr Leu Tyr  
       210                  215          220  
 Tyr Leu Leu Gly Asp Asn Leu Pro Thr Asp Gly His Tyr Glu Asn Leu  
 225                  230          235          240  
 Gln Glu Ala Ala Lys Trp Gly Phe Lys Ile Ser Pro Leu Met Arg Lys  
           245                  250          255

Cys	Gln	Thr	Leu	Gln	Glu	Val	Phe	Asp	Phe	Ile	Asn	Tyr	Trp	Asp	Val
			260					265					270		
Glu	Arg	Lys	Asn	Leu	Asn	Val	Ala	Thr	Asp	Gly	Ile	Val	Leu	Lys	Val
		275					280					285			
Asn	Ser	Leu	Lys	Gln	Gln	Arg	Asn	Leu	Gly	Phe	Thr	Ala	Lys	Ser	Pro
	290					295					300				
Arg	Trp	Ala	Ile	Ala	Tyr	Lys	Phe	Gln	Ala	Glu	Arg	Ala	Leu	Thr	Arg
305					310					315					320
Leu	Asn	Met	Val	Thr	Tyr	Gln	Val	Gly	Arg	Thr	Gly	Ala	Val	Thr	Pro
			325					330						335	
Val	Ala	Asn	Leu	Asp	Pro	Val	Gln	Leu	Ser	Gly	Thr	Val	Val	Lys	Arg
			340					345					350		
Ala	Ser	Leu	His	Asn	Ala	Asp	Ile	Ile	Glu	Gly	Leu	Asp	Leu	His	Ile
		355					360					365			
Gly	Asp	Met	Val	Tyr	Val	Glu	Lys	Gly	Gly	Glu	Ile	Ile	Pro	Lys	Ile
	370					375					380				
Thr	Gly	Val	Asp	Thr	Ser	Ala	Arg	Phe	Met	Ile	Gly	Glu	Lys	Val	Lys
385					390					395					400
Phe	Ile	Thr	His	Cys	Pro	Glu	Cys	Gly	Ser	Lys	Leu	Ile	Arg	Tyr	Glu
			405					410						415	
Gly	Glu	Ala	Ala	His	Tyr	Cys	Pro	Asn	Glu	Thr	Ala	Cys	Pro	Pro	Gln
		420						425					430		
Ile	Lys	Gly	Lys	Ile	Glu	His	Phe	Ile	Ser	Arg	Lys	Ala	Met	Asn	Ile
	435						440					445			
Asp	Gly	Leu	Gly	Pro	Glu	Thr	Ile	Asp	Met	Phe	Tyr	Arg	Leu	Gly	Leu
	450					455					460				
Ile	Arg	Asp	Thr	Ala	Asp	Leu	Tyr	Gln	Leu	Thr	Thr	Asp	Asp	Ile	Arg
465					470					475					480
Gly	Leu	Asp	Arg	Met	Gly	Asp	Lys	Ser	Ala	Glu	Asn	Ile	Ile	Lys	Gly
			485					490						495	
Ile	Met	Gln	Ser	Lys	Glu	Val	Pro	Phe	Glu	Arg	Val	Ile	Phe	Ala	Leu
		500						505					510		
Gly	Ile	Arg	Phe	Val	Gly	Glu	Thr	Val	Ala	Lys	Lys	Ile	Ala	Lys	Ser
	515					520						525			
Phe	Lys	Asp	Ile	Glu	Glu	Leu	Glu	Asn	Ala	Asp	Leu	Glu	Thr	Leu	Ile
	530					535				540					
Asn	Ile	Asp	Glu	Ile	Gly	Glu	Lys	Ile	Ala	Arg	Ser	Ile	Leu	Asn	Tyr
545					550					555					560
Phe	Ala	Asn	Glu	Ser	Asn	Arg	Lys	Leu	Val	Asp	Arg	Leu	Lys	Thr	Ala
			565					570						575	
Gly	Leu	Gln	Leu	Tyr	Arg	Pro	Glu	Glu	Asp	Leu	Ser	Gly	His	Thr	Asp
		580						585					590		
Lys	Leu	Ala	Gly	Gln	Ser	Ile	Val	Ile	Ser	Gly	Val	Phe	Thr	His	His
	595					600						605			
Ser	Arg	Asp	Glu	Tyr	Lys	Asp	Leu	Ile	Glu	Lys	His	Gly	Gly	Lys	Asn
	610					615					620				
Val	Gly	Ser	Ile	Ser	Ser	Lys	Thr	Ser	Phe	Ile	Leu	Ala	Gly	Asp	Asn
625						630				635					640
Met	Gly	Pro	Ala	Lys	Leu	Glu	Lys	Ala	Ser	Lys	Leu	Gly	Ile	Lys	Ile
			645					650						655	
Met	Asn	Glu	Glu	Glu	Phe	Leu	Lys	Leu	Ile	Ser					
		660						665							

&lt;210&gt; 5435

&lt;211&gt; 202

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5435



Ile Tyr Leu Ala Lys Leu Val Lys Ile His Asn Met Cys Gly Ile Ser  
 1 5 10 15  
 Phe Ile Phe Val Ser Leu Ile Asn Glu Arg Asp Met Ile Leu Asn Glu  
 20 25 30  
 Arg Asp Ser Arg His Glu His Val Leu Asn Val Ala Arg Gln Met Met  
 35 40 45  
 Thr Ala Ala Arg Thr Ala Pro Lys Gly Lys Gly Ile Asp Ile Ile Glu  
 50 55 60  
 Thr Ala Ile Val Thr Gly Glu Glu Ile Gln Gln Leu Ser Asp Thr Leu  
 65 70 75 80  
 Lys Ala Met Phe Glu Glu Phe Gly Met Lys Phe Phe Leu Arg Asp Ala  
 85 90 95  
 Asp Asn Ile Leu Gln Ala Glu Cys Ile Leu Leu Ile Gly Thr Arg Glu  
 100 105 110  
 Gln Ala Gln Gly Leu Asn Cys Gly His Cys Gly Tyr Ala Thr Cys Ser  
 115 120 125  
 Gly Arg Ser Glu Gly Val Pro Cys Ala Leu Asn Ser Ile Asp Val Gly  
 130 135 140  
 Ile Ala Ile Gly Ser Ala Cys Ala Thr Ala Ala Asp Leu Arg Val Asp  
 145 150 155 160  
 Thr Arg Val Met Phe Ser Ala Gly Leu Ala Ala Gln Arg Leu Glu Trp  
 165 170 175  
 Leu Lys Gly Cys Arg Gln Val Met Ala Ile Pro Val Ser Ala Ser Ser  
 180 185 190  
 Lys Asn Pro Phe Phe Asp Arg Lys Pro Lys  
 195 200

<210> 5436  
 <211> 604  
 <212> PRT  
 <213> B.fragilis

<400> 5436  
 Asn Asn Asn Ala Met Lys Tyr Ile Ala Ile Thr Leu Gly Pro Ile Thr  
 1 5 10 15  
 Arg Thr Ile Glu Met Ala Glu Ser Thr Lys Glu Leu Trp Ala Ala Ser  
 20 25 30  
 Tyr Phe Phe Ser Tyr Leu Ala Lys Lys Ile Val Glu Pro Phe Val Lys  
 35 40 45  
 Lys Asn Arg Thr Phe Gln Leu Pro Leu Ile Asn Glu Glu Met Gln Lys  
 50 55 60  
 Pro His Cys Gly Ala Gly Leu Phe Pro Asp Arg Tyr Ile Phe Lys Ser  
 65 70 75 80  
 Glu Pro Glu Asp Leu Glu Leu Leu Lys Gln His Ser Asp Gln Val Leu  
 85 90 95  
 Ile Glu Ile Ala Gly His Ile Ala Ser Pro Ser Leu Pro Gly Thr Ala  
 100 105 110  
 Lys Asp Val Ser Gln Ile Tyr His Tyr Leu Lys Ser Tyr Ile Lys Ile  
 115 120 125  
 Tyr Phe Ile Glu Arg Thr Leu Glu Ser Asp Asp Pro His Val Val Ile  
 130 135 140  
 Pro Ala Cys Glu Lys Tyr Leu Asn Ile Ile Glu Asn Gln Glu Thr Phe  
 145 150 155 160  
 Pro Glu Gln Glu Glu Thr Met Ile Ser His Gln Lys Ser Asp Phe Leu  
 165 170 175  
 Lys Phe Leu Ile Thr Asn Val Asn Gly Lys Ile Tyr Arg Lys Asp Lys  
 180 185 190  
 Asn Ser Ile Pro Arg Phe Thr Gly Ser Phe Leu Thr Arg Asp Ala Phe  
 195 200 205

Gly Asp Met Asn Gly Glu Arg Leu Phe Glu Ser Ile Leu Glu Ile Ser  
 210 215 220  
 Ala Ser Glu Leu Asn Ile Asn Ile Gln Gln Lys Ala Leu Glu Val Ile  
 225 230 235 240  
 Thr Ala Asn Glu Lys Asn Lys Gly Glu Lys Tyr Ser Asp Gln Ile Trp  
 245 250 255  
 Asp Ala Glu Glu Ile Ile Leu Asn Asp Asn Lys Ala Gln Leu Arg Pro  
 260 265 270  
 Tyr His Lys Tyr Ile Ala Ile Ile Lys Ser Asp Gly Asp Ser Met Gly  
 275 280 285  
 Glu Thr Ile Lys Ser Met Gly Ala Tyr Asn Ile Pro Ile Thr Gln Leu  
 290 295 300  
 Ser Lys Ala Leu Leu Ser Phe Asn Ile Glu Ser Ile Asn Glu Ile Val  
 305 310 315 320  
 Ala Tyr Gly Gly Lys Pro Ile Phe Ile Gly Gly Asp Asp Leu Leu Cys  
 325 330 335  
 Phe Ala Pro Val Cys Cys Asn Gly Asn Asn Val Phe Asn Leu Val Glu  
 340 345 350  
 Lys Leu Ser Thr Cys Phe Asp Gln Cys Ile Asn Gln His Leu Gln Gln  
 355 360 365  
 Tyr Ile Asn Ala Cys Ser Glu Ala Gln Arg Pro Leu Pro Ser Leu Ser  
 370 375 380  
 Phe Gly Ile Ser Ile Thr Tyr His Lys Tyr Pro Met Phe Glu Ala Leu  
 385 390 395 400  
 His Thr Thr Asp Tyr Leu Leu Glu Met Val Ala Lys Asp Asn Leu Phe  
 405 410 415  
 Lys Tyr Thr Leu Ser Asn Lys Asn Ile Leu Asn Glu Asn Met Lys Arg  
 420 425 430  
 Phe Ile Leu Lys Asn Lys Leu Ala Phe Ser Leu Gln Lys His Ser Gly  
 435 440 445  
 Gln Ile Tyr His Thr Ala Met Ser Lys Lys Gly Lys Ser Tyr Val Lys  
 450 455 460  
 Phe Asn Met Leu Leu Gln Lys Tyr Ile Leu Lys Asn Lys Asp Met Ser  
 465 470 475 480  
 Lys Thr Gln Glu Ser Glu Lys Phe Leu Ser Ser Val Ile Gln Met Ile  
 485 490 495  
 Arg Ala His Ala Glu Ile Leu Gln Ile Ile Leu Gln Asn Glu Asp Lys  
 500 505 510  
 Arg Thr Glu Met Leu Lys Asn Tyr Phe Asp Asn Asn Phe Asn Glu Ser  
 515 520 525  
 Cys His Leu Gly Tyr Thr Gly Leu Phe Glu Asp Ile Gln Thr Leu Leu  
 530 535 540  
 Cys Leu Arg Tyr Gln Glu Asn Ile Gln Asp Tyr Gln Asn Arg Asn Glu  
 545 550 555 560  
 Ile Ile Gln Gln Asn Thr Ile Leu Thr Ser Asp Glu Lys Glu Ile Leu  
 565 570 575  
 Ile Val Ser Pro Ala Met Asp Ala Ile His Thr Ile Phe Thr Ala Leu  
 580 585 590  
 Gln Phe Ile His Phe Ile Asn Tyr Asn Lys Asp Glu  
 595 600

&lt;210&gt; 5437

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5437

Thr Ile Met Ala Asp Leu Ser Val Asn Ile Gly Lys Leu Gln Met Lys  
 1 5 10 15

Asn Pro Val Met Thr Ala Ser Gly Thr Phe Gly Tyr Gly Glu Glu Phe  
 20 25 30  
 Ala Asp Phe Ile Asp Ile Thr Arg Ile Gly Gly Ile Ile Val Lys Gly  
 35 40 45  
 Thr Thr Leu His Lys Arg Glu Gly Asn Pro Tyr Pro Arg Met Ala Glu  
 50 55 60  
 Thr Pro Ser Gly Met Leu Asn Ala Val Gly Leu Gln Asn Lys Gly Val  
 65 70 75 80  
 Glu Tyr Phe Ser Asn His Ile Tyr Pro Arg Ile Lys Asp Ile Gln Thr  
 85 90 95  
 His Met Ile Val Asn Val Ser Gly Ser Ala Ile Glu Asp Tyr Val Lys  
 100 105 110  
 Thr Ala Glu Ile Ile Asn Glu Leu Asp Lys Ile Pro Ala Ile Glu Leu  
 115 120 125  
 Asn Ile Ser Cys Pro Asn Val Lys Gln Gly Gly Met Ala Phe Gly Val  
 130 135 140  
 Thr Thr Lys Gly Val Ser Glu Val Val Gln Ala Val Arg Ser Ala Tyr  
 145 150 155 160  
 Lys Lys Thr Leu Ile Val Lys Leu Ser Pro Asn Val Thr Asp Ile Ala  
 165 170 175  
 Glu Met Ala Arg Ala Ala Glu Ala Asn Gly Ala Asp Ser Val Ser Leu  
 180 185 190  
 Ile Asn Thr Leu Leu Gly Met Ala Ile Asp Ala Glu Arg Lys Arg Pro  
 195 200 205  
 Ile Leu Ser Thr Val Thr Gly Gly Met Ser Gly Ala Ala Val Lys Pro  
 210 215 220  
 Ile Ala Leu Arg Met Val Trp Gln Val Ala Lys Ala Val Asn Ile Pro  
 225 230 235 240  
 Val Ile Gly Leu Gly Gly Ile Met Asn Trp Lys Asp Ala Val Glu Phe  
 245 250 255  
 Met Leu Ala Gly Ala Ser Ala Ile Gln Ile Gly Thr Ala Asn Phe Ile  
 260 265 270  
 Asp Pro Ala Ile Thr Ile Lys Val Ile Asp Gly Ile Asn Asp Tyr Leu  
 275 280 285  
 Glu Arg His Gly Cys Lys Ser Val Pro Glu Ile Ile Gly Ala Leu Glu  
 290 295 300  
 Val  
 305

&lt;210&gt; 5438

&lt;211&gt; 431

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5438

Tyr Asp Met Ala Lys Ile Gln Ile Lys Ser Glu Lys Leu Thr Pro Phe  
 1 5 10 15  
 Gly Gly Ile Phe Ser Ile Met Glu Lys Phe Asp Ser Met Leu Ser Pro  
 20 25 30  
 Val Ile Asp Ser Thr Leu Gly Gln Arg Cys Ser Ser Ile Phe Gly Tyr  
 35 40 45  
 Gln Phe Ser Glu Ile Val Arg Ser Leu Met Ser Val Tyr Phe Cys Gly  
 50 55 60  
 Gly Ser Cys Val Glu Asp Val Thr Ser Gln Leu Met Arg His Leu Ser  
 65 70 75 80  
 Tyr His Pro Thr Leu Arg Thr Cys Ser Ser Asp Thr Ile Leu Arg Ala  
 85 90 95  
 Ile Lys Glu Leu Thr Gln Glu Asn Ile Ser Tyr Thr Ser Asp Gln Gly  
 100 105 110

Lys Thr Tyr Asp Phe Asn Thr Ala Asp Lys Leu Asn Thr Leu Leu Ile  
 115 120 125  
 Asn Ala Leu Val Ser Thr Gly Glu Leu Lys Glu Ile Glu Glu Tyr Asp  
 130 135 140  
 Val Asp Phe Asp His Gln Phe Leu Glu Thr Glu Lys Tyr Asp Ala Lys  
 145 150 155 160  
 Pro Thr Tyr Lys Lys Phe Leu Gly Tyr Arg Pro Gly Val Tyr Val Ile  
 165 170 175  
 Gly Asp Lys Ile Val Tyr Ile Glu Asn Ser Asp Gly Asn Thr Asn Val  
 180 185 190  
 Arg Phe His Gln Ala Asp Thr His Lys Arg Phe Phe Ala Leu Leu Glu  
 195 200 205  
 Ser Gln Asn Ile Arg Val Asn Arg Phe Arg Ala Asp Cys Gly Ser Cys  
 210 215 220  
 Ser Lys Glu Ile Val Ser Glu Ile Glu Lys His Cys Lys His Phe Tyr  
 225 230 235 240  
 Ile Arg Ala Asn Arg Cys Ser Ser Leu Tyr Asn Asp Ile Phe Ala Leu  
 245 250 255  
 Arg Gly Trp Lys Thr Glu Glu Ile Asn Gly Ile Gln Phe Glu Leu Asn  
 260 265 270  
 Ser Ile Leu Val Glu Lys Trp Glu Gly Lys Cys Tyr Arg Leu Val Ile  
 275 280 285  
 Gln Arg Gln Arg Arg Asn Ser Gly Asp Leu Asp Leu Trp Glu Gly Glu  
 290 295 300  
 Tyr Thr Tyr Arg Cys Ile Leu Thr Asn Asp Tyr Lys Ser Ser Thr Arg  
 305 310 315 320  
 Asp Ile Val Glu Phe Tyr Asn Leu Arg Gly Gly Lys Glu Arg Ile Phe  
 325 330 335  
 Asp Asp Met Asn Asn Gly Phe Gly Trp Ser Arg Leu Pro Lys Ser Phe  
 340 345 350  
 Met Ala Glu Asn Thr Val Phe Leu Leu Leu Thr Ala Leu Ile His Asn  
 355 360 365  
 Phe Tyr Lys Thr Ile Met Ser Arg Leu Asp Thr Lys Ala Phe Gly Leu  
 370 375 380  
 Lys Lys Thr Ser Arg Ile Lys Ser Phe Val Phe Arg Phe Ile Ser Val  
 385 390 395 400  
 Pro Ala Lys Trp Ile Met Thr Ala Arg Gln Tyr Val Leu Asn Ile Tyr  
 405 410 415  
 Thr Glu Asn Arg Ala Tyr Ala Lys Pro Phe Lys Thr Glu Phe Gly  
 420 425 430

&lt;210&gt; 5439

&lt;211&gt; 761

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5439

Ile Tyr Asn Leu Asn Met Pro Asp Tyr Tyr His Ser Ile Thr Thr Leu  
 1 5 10 15  
 His Ala Leu Gln Asn Ala Trp Arg Ala Val Arg Ala Lys Asn Ala Ala  
 20 25 30  
 Gly Gly Ile Asp Gly Phe Thr Leu Ser His Phe Glu Lys Arg Leu Asn  
 35 40 45  
 Asp Asn Leu Ile Glu Leu Gln His Glu Leu Ile Ser Gln Thr Trp Asn  
 50 55 60  
 Pro Glu Pro Tyr Leu Arg Ile Glu Ile Thr Lys Asn Glu Thr Glu Lys  
 65 70 75 80  
 Arg Lys Leu Gly Leu Leu Cys Ile Lys Asp Lys Ile Val Gln Gln Ala  
 85 90 95

Ile Lys Thr Ala Ile Glu Pro Gln Leu Glu Lys Thr Phe Leu Asn Leu  
 100 105 110  
 Ser Tyr Gly Tyr Arg Pro Asn Lys Gly Pro Glu Arg Ala Ile Lys Arg  
 115 120 125  
 Val Val His Asp Leu Lys Lys Leu Lys Ser Gly Tyr Val Ala Lys Leu  
 130 135 140  
 Asp Ile Asp Asn Tyr Phe Asp Thr Ile Asn His Glu Arg Leu Phe Thr  
 145 150 155 160  
 Arg Leu Ala Asn Trp Leu Lys Asp Asp Glu Thr Leu Arg Leu Ile Arg  
 165 170 175  
 Leu Cys Ile Gln Thr Gly Ile Val Thr Pro Gln Leu Gln Trp Gln Glu  
 180 185 190  
 Ile Asn Lys Gly Val Pro Gln Gly Ala Ile Leu Ser Pro Leu Leu Ala  
 195 200 205  
 Asn Phe Tyr Leu His Pro Phe Asp Gln Phe Ala Ala Asn Lys Val Pro  
 210 215 220  
 Met Tyr Ile Arg Tyr Ala Asp Asp Phe Leu Ile Ala Thr Ser Thr Glu  
 225 230 235 240  
 Lys Gln Ile Lys Glu Ala Val Glu Leu Val Lys Glu Glu Leu Glu Ser  
 245 250 255  
 Gln Phe Tyr Leu Gln Leu Asn Thr Pro Ile Ile His Asn Phe His Asp  
 260 265 270  
 Gly Ile Glu Phe Leu Gly Ile Thr Ile Ser Asp Thr Gly Leu Ser Ile  
 275 280 285  
 Thr Glu Lys Lys Lys Lys Thr Leu Gln Glu Arg Ile Asn Ser Ile Lys  
 290 295 300  
 Phe Ile Lys Ser Ser Leu Ser Ser Gln Ser Lys Glu Thr Leu Gln Gly  
 305 310 315 320  
 Ile Lys Asn Tyr Tyr Ala Lys Leu Leu Pro Glu Ser Thr Leu Lys Glu  
 325 330 335  
 Leu Asp Cys Phe Leu Met Asn Arg Leu Asn Ala Leu Ile Ile Arg Asn  
 340 345 350  
 Gln Asn Ser Ile Asn Asn Lys Lys Glu Leu Val Ser Asn Leu Gln Lys  
 355 360 365  
 Ile Glu Phe Tyr Ser Glu Asn Ser Asn Lys Asn Lys Ser Gln Leu Ile  
 370 375 380  
 Gln Gln Leu Cys Ser Thr Tyr Ile Val His Ser Thr Lys Ser Lys Thr  
 385 390 395 400  
 Arg Leu Thr Ser Thr His Ile Asp Asn Thr Lys Leu Ile Thr Gln Lys  
 405 410 415  
 Lys Lys Glu Tyr Gln Lys Arg Glu Asn Glu Gly Ala Glu Leu Val Ile  
 420 425 430  
 Ser Ile Pro Gly Ser Tyr Ile Gly Ala Thr Tyr Lys Gly Ile Thr Val  
 435 440 445  
 Lys Leu Gln Gly Lys Ile Ile Asn Lys Pro Ser Pro Ala Leu Lys His  
 450 455 460  
 Ile Thr Val Val Gly Lys Gly Ile Ser Leu Ser Ser Asn Ala Ile Thr  
 465 470 475 480  
 Tyr Cys Met Asn His Lys Ile Pro Ile Asp Phe Phe Asp Gly Arg Gly  
 485 490 495  
 Lys Gln Tyr Gly Thr Val Leu Asn Pro Val Phe Leu Asp Val Thr Leu  
 500 505 510  
 Trp Asn Lys Gln Val Glu Leu Pro Leu Glu Gln Lys Ile Lys Leu Ala  
 515 520 525  
 Thr Gln Ile Ile Ile Gly Lys Leu Lys Asn Gln Leu Asn Leu Ile Lys  
 530 535 540  
 Tyr Tyr His Lys Tyr His Lys Asp Ile Leu Gly Gly Lys Leu Ser Glu  
 545 550 555 560  
 Lys Tyr Val Glu Val Val Leu Lys Ile Asp Lys Leu Ile Glu Lys Ala

[illegible]

<400> 5440

<400> 5441

Arg	His	Thr	Tyr	Ile	Tyr	Met	Ala	Lys	Gln	Glu	Leu	Thr	Cys	Asp	Asp
1				5					10					15	
Ile	Leu	Lys	Glu	Leu	Arg	Ala	Lys	Gln	Tyr	Arg	Pro	Ile	Tyr	Tyr	Leu
			20					25					30		
Met	Gly	Glu	Glu	Ser	Tyr	Tyr	Ile	Asp	Leu	Ile	Ala	Asp	Tyr	Ile	Thr
		35					40					45			
Asp	Asn	Val	Leu	Thr	Asp	Thr	Glu	Lys	Glu	Phe	Asn	Leu	Thr	Val	Val
	50					55					60				
Tyr	Gly	Ala	Asp	Val	Asp	Val	Ala	Thr	Val	Ile	Asn	Ala	Ala	Lys	Arg
65					70					75					80

Tyr Pro Met Met Ser Glu His Gln Val Val Ile Val Lys Glu Ala Gln  
 85 90 95  
 Ala Ile Arg Asn Ile Glu Glu Leu Ser Tyr Tyr Leu Gln Lys Pro Leu  
 100 105 110  
 Asn Ser Thr Ile Leu Val Val Cys His Lys His Gly Ala Leu Asp Arg  
 115 120 125  
 Arg Lys Lys Leu Ala Ala Glu Ile Glu Lys Thr Gly Ile Leu Phe Glu  
 130 135 140  
 Ser Lys Lys Ile Lys Glu Ala Gln Leu Pro Ala Phe Ile Ser Ser Tyr  
 145 150 155 160  
 Met Lys Arg Lys Gly Ile Asp Met Glu Pro Lys Ala Thr Ala Met Leu  
 165 170 175  
 Ala Asp Phe Val Gly Thr Asp Leu Ser Arg Leu Thr Gly Glu Leu Glu  
 180 185 190  
 Lys Leu Ile Ile Thr Leu Pro Gly Gly Gln Lys Arg Val Thr Pro Glu  
 195 200 205  
 Gln Ile Glu Lys Asn Ile Gly Ile Ser Lys Asp Tyr Asn Asn Phe Glu  
 210 215 220  
 Leu Arg Ser Ala Leu Val Glu Lys Asp Val Leu Lys Ala Asn Lys Ile  
 225 230 235 240  
 Ile Lys Tyr Phe Glu Glu Asn Pro Lys Thr Asn Pro Ile Gln Met Thr  
 245 250 255  
 Leu Ser Leu Leu Phe Asn Phe Tyr Ser Asn Leu Met Leu Ala Tyr Tyr  
 260 265 270  
 Ala Pro Asp Lys Ser Glu Gln Gly Val Ala Thr Met Leu Gly Leu Lys  
 275 280 285  
 Thr Pro Trp Gln Ala Arg Asp Tyr Leu Thr Ala Met Arg Lys Tyr Thr  
 290 295 300  
 Gly Val Lys Thr Met Gln Ile Val Gly Glu Ile Arg Tyr Ala Asp Ala  
 305 310 315 320  
 Lys Ser Lys Gly Val Gly Asn Thr Ser Ile Ser Asp Gly Asp Ile Leu  
 325 330 335  
 Arg Glu Leu Val Phe Lys Ile Leu His  
 340 345

&lt;210&gt; 5442

&lt;211&gt; 777

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5442

Phe Asn Pro Leu Tyr Ser Val Leu Leu Asp Leu Met Lys Lys Asn Leu  
 1 5 10 15  
 Leu Leu Leu Phe Leu Phe Leu Leu Phe Leu Pro Met Leu Val Gln Ala  
 20 25 30  
 Gln Lys Val Gly Leu Val Leu Ser Gly Gly Gly Ala Lys Gly Leu Thr  
 35 40 45  
 His Ile Gly Ile Ile Arg Ala Leu Glu Glu Asn Asn Ile Pro Ile Asp  
 50 55 60  
 Tyr Ile Thr Gly Thr Ser Met Gly Ala Ile Val Gly Ser Leu Tyr Ala  
 65 70 75 80  
 Met Gly Tyr Ser Pro Asp Asp Met Glu Thr Leu Leu Lys Ser Glu Asp  
 85 90 95  
 Phe Lys Arg Trp Tyr Ser Gly Glu Val Glu Glu Lys Tyr Met Tyr Tyr  
 100 105 110  
 Phe Lys Lys Asn Leu Pro Thr Pro Glu Phe Phe Asn Ile Arg Phe Ser  
 115 120 125  
 Phe Lys Asp Ser Leu Ser Leu Lys Pro Gln Phe Leu Pro Thr Ser Val  
 130 135 140

Val	Asn	Pro	Ile	Gln	Met	Asn	Leu	Val	Phe	Ile	Asp	Leu	Tyr	Ala	Arg
145					150					155					160
Ala	Thr	Ala	Ala	Cys	Asp	Gly	Asp	Phe	Asp	Lys	Leu	Phe	Val	Pro	Phe
				165					170						175
Arg	Cys	Ile	Ala	Ser	Asp	Val	Tyr	Asn	Lys	Lys	Gln	Leu	Ile	Leu	Lys
			180					185						190	
Arg	Gly	Asp	Leu	Gly	Asp	Ala	Val	Arg	Ala	Ser	Met	Ser	Phe	Pro	Phe
		195					200					205			
Met	Phe	Lys	Pro	Ile	Glu	Ile	Asp	Ser	Met	Leu	Ala	Tyr	Asp	Gly	Gly
	210					215					220				
Ile	Tyr	Asn	Asn	Phe	Pro	Thr	Asp	Val	Met	Arg	Glu	Asp	Phe	His	Pro
225					230					235					240
Asp	Ile	Ile	Ile	Gly	Ser	Val	Val	Ser	Thr	Asn	Pro	Gly	Lys	Pro	Lys
				245					250						255
Glu	Asn	Asp	Leu	Met	Ser	Gln	Ile	Glu	Asn	Met	Val	Met	Gln	Lys	Thr
			260					265					270		
Asp	Tyr	Ser	Leu	Pro	Asp	Ser	Ala	Gly	Ile	Leu	Met	Thr	Phe	Lys	Tyr
		275					280					285			
Asn	Asp	Val	Ser	Leu	Met	Asp	Phe	Gln	Arg	Ile	Asp	Glu	Leu	Glu	Lys
	290					295					300				
Ile	Gly	Tyr	Asp	Arg	Thr	Met	Ser	Leu	Met	Asp	Ser	Ile	Lys	Ser	Arg
305					310					315					320
Ile	His	Arg	Arg	Val	Asn	Val	Asp	Asn	Ile	Arg	Leu	Arg	Arg	Leu	Val
				325					330						335
Tyr	Lys	Ser	Asn	Tyr	Pro	Glu	Leu	Arg	Phe	Lys	Asn	Ile	Tyr	Ile	Asp
			340					345					350		
Gly	Ala	Asn	Thr	His	Gln	Gln	Val	Tyr	Ile	Lys	Lys	Glu	Phe	His	Thr
		355					360					365			
Ser	Asp	Asp	Lys	Glu	Phe	Thr	Tyr	Glu	Asp	Leu	Lys	Arg	Gly	Tyr	Phe
	370					375					380				
Arg	Leu	Leu	Ser	Asp	Asn	Met	Ile	Ser	Glu	Ile	Ile	Pro	His	Ala	Val
385					390					395					400
Phe	Asn	Pro	Glu	Asp	Asp	Thr	Tyr	Asp	Leu	His	Leu	Lys	Ile	Lys	Met
				405					410					415	
Glu	Asn	Glu	Phe	Ser	Val	Arg	Val	Gly	Gly	Asn	Val	Ser	Thr	Thr	Ser
			420					425					430		
Ser	Asn	Gln	Ile	Tyr	Leu	Gly	Leu	Ala	Tyr	Gln	Asn	Leu	Asn	Tyr	Tyr
	435						440					445			
Ser	Lys	Glu	Phe	Thr	Leu	Asp	Gly	Gln	Leu	Gly	Lys	Ile	Tyr	Asn	Asn
	450					455					460				
Ala	Gln	Phe	Met	Ala	Lys	Val	Asp	Phe	Ala	Thr	Thr	Ile	Pro	Thr	Ser
465					470					475					480
Tyr	Arg	Phe	Ile	Ala	Ser	Ile	Ser	Thr	Phe	Asp	Tyr	Phe	Lys	Lys	Asp
				485					490					495	
Lys	Leu	Phe	Ser	Lys	Asn	Asp	Lys	Pro	Ala	Phe	Asn	Gln	Lys	Asp	Glu
			500					505					510		
Arg	Phe	Leu	Lys	Leu	Lys	Val	Ala	Leu	Pro	Phe	Leu	Ser	Ser	Lys	Arg
		515					520					525			
Leu	Glu	Leu	Gly	Phe	Gly	Ile	Ala	Gln	Ile	Glu	Asp	Arg	Tyr	Phe	Gln
	530					535					540				
Asn	Asn	Val	Ile	Asp	Phe	Asp	Lys	Asp	Lys	Tyr	Asp	Lys	Ser	Gly	Tyr
545					550					555					560
Leu	Leu	Phe	Gly	Gly	Ser	Val	Ser	Phe	Asn	Gly	Ser	Thr	Leu	Asn	Ser
			565					570						575	
Arg	Gln	Phe	Pro	Ile	Gln	Gly	Ala	Arg	Glu	Ala	Leu	Val	Ala	Gln	Ile
			580					585					590		
Phe	Thr	Gly	Asn	Glu	Ser	Phe	Arg	Pro	Gly	Val	Asn	Ser	Glu	Asn	Lys
		595					600					605			
Lys	Pro	Val	Lys	Glu	Lys	His	Ser	Trp	Leu	Gln	Leu	Ser	Tyr	Met	Lys

145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605



610	615	620
Glu Lys Tyr His Lys Met Gly Ala Asn Trp Ile Leu Gly Trp Tyr Leu		
625	630	635
Asp Ala Val Tyr Ala Ser Lys Asn Phe Ser Glu Asn Tyr Thr Ala Thr		
	645	650
Met Met Gln Ala Ser Glu Phe Ala Pro Thr Ala His Ser Lys Leu Thr		
	660	665
Tyr Asn Glu Ala Phe Arg Ala Asn Gln Tyr Val Ala Ala Gly Ile Arg		
	675	680
Pro Ile Tyr Arg Leu Asn Gln Met Phe His Val Arg Gly Glu Phe Tyr		
	690	695
Gly Phe Leu Pro Ile Phe Pro Ile Glu Arg Asn Ser Ile Asn Lys Ala		
705	710	715
Tyr Tyr Gly Lys Ala Phe Ser Arg Phe Glu Tyr Leu Gly Glu Ile Ser		
	725	730
Val Val Cys Gln Leu Pro Phe Gly Ala Ile Ser Ala Tyr Val Asn His		
	740	745
Tyr Ser Ser Pro Arg Arg Glu Trp Asn Val Gly Leu Thr Leu Gly Trp		
	755	760
Gln Leu Phe Asn Tyr Arg Phe Ile Glu		765
770	775	

<210> 5443  
 <211> 74  
 <212> PRT  
 <213> B.fragilis

<400> 5443  
 Val Ala Met Tyr Gly Asn Gly Val Thr Ile Gly Thr Leu Lys Asn Thr  
 1 5 10 15  
 Leu Lys Thr Val Asn Leu Ser Ile Pro Asp Gly His Leu Met Val His  
 20 25 30  
 Leu Pro Phe Ser Ala Gly Ser Cys Glu Val Val Val Gly Val Val Leu  
 35 40 45  
 Gln Lys Ala Ala Glu Cys His Ile Leu Thr Met Thr Cys Gln Thr Ile  
 50 55 60  
 Val Met Asn Met Glu Val Leu Gly Leu Phe  
 65 70

<210> 5444  
 <211> 99  
 <212> PRT  
 <213> B.fragilis

<400> 5444  
 Pro Lys Asn Leu Lys Ser Ser Arg Thr Met Thr Ser Thr Asp Ser Ile  
 1 5 10 15  
 Leu Gln Leu Ile Ser Glu Ile His Ile Pro Gly Phe Phe Ile Thr Val  
 20 25 30  
 Asp Phe Leu Gln Ile Gly Lys Ala Ile Pro Gln Gly Ile Ser Gly Phe  
 35 40 45  
 Leu Lys Glu Lys Tyr Asp Lys Ile Ser His Gly Ala Ser Gly Arg Lys  
 50 55 60  
 Phe Ile Tyr Gln Lys Ser Gly Trp Arg Met Ala Phe Thr Phe Tyr Pro  
 65 70 75 80  
 Thr Asp Arg Val Val Asp Glu Lys Tyr Ala Met Lys Asn Lys Met Ile  
 85 90 95  
 Lys Lys Arg

<210> 5445  
 <211> 61  
 <212> PRT  
 <213> B.fragilis

<400> 5445  
 Leu Pro Val His Arg Ile Ile Tyr Leu Gln Lys Lys Phe Pro Lys Ser  
 1 5 10 15  
 Leu Gln Ile Gln Glu Lys Ala Val Ser Leu His Pro Leu Asn Lys Asn  
 20 25 30  
 Asn Gly Arg Val Ala Gln Leu Asn Arg Val Ala Asp Tyr Gly Ser Ala  
 35 40 45  
 Gly Tyr Arg Phe Glu Ser Cys Arg Asp His Phe Lys Val  
 50 55 60

<210> 5446  
 <211> 283  
 <212> PRT  
 <213> B.fragilis

<400> 5446  
 Lys Thr Asn His Met Thr Thr Arg Met Tyr Val Ile Asn Thr Leu Ser  
 1 5 10 15  
 Asn Met His Val Gly Ser Gly Glu Val Asn Tyr Gly Val Ile Asp Asn  
 20 25 30  
 Leu Ile Gln Arg Asp Ser Val Thr Asn Leu Pro Asn Ile Asn Ser Ser  
 35 40 45  
 Gly Leu Lys Gly Ala Ile Arg Glu Tyr Phe Lys Glu Asn Glu Asn Leu  
 50 55 60  
 Val Arg Glu Leu Phe Gly Ser Ala Pro Lys Asp Glu Lys Thr Leu Pro  
 65 70 75 80  
 Gly Lys Val Arg Phe Phe Glu Ala Asn Leu Leu Ser Met Pro Val Arg  
 85 90 95  
 Ser Asp Lys Val Pro Phe Leu Met Ala Thr Ser Asp Glu Val Leu Gln  
 100 105 110  
 Glu Leu Ile Thr Lys Met Lys Phe Asn Cys Glu Glu Ala Thr Gln  
 115 120 125  
 Tyr Ile Ser His Leu Ser Thr Leu Leu Asp Asn Ile Lys Thr Gln Ala  
 130 135 140  
 Gln Gly Thr Asp Phe Ala Tyr Val Phe Asp Pro Ser Leu Gln Gly Ala  
 145 150 155 160  
 Ile Ile Glu Glu Val Ser Ile Arg Ala Thr Cys Pro Ser His Ile Pro  
 165 170 175  
 Leu Gln Leu Ser Leu Lys Lys Leu Leu Gly Asp Arg Leu Val Ile Leu  
 180 185 190  
 Ser His Lys Tyr Phe Ser Ile Leu Ser Asp Asp Asn His Leu Pro Val  
 195 200 205  
 Leu Ser Arg Asn Asn Leu Glu Asn Gly Gln Ser Ala Asn Leu Trp Tyr  
 210 215 220  
 Glu Gln Val Leu Pro Arg Tyr Ser Arg Leu Tyr Phe Met Leu Met Asp  
 225 230 235 240  
 Gly Asn Ala Gln Ser Glu Tyr Leu Lys Lys Phe Arg Asp Thr Leu Cys  
 245 250 255  
 Thr Pro Ser Thr Ile Ile Gln Ile Gly Ala Asn Ala Ser Ile Gly Tyr  
 260 265 270  
 Gly Tyr Cys Gln Ile Ser Glu Leu Ser Pro Phe  
 275 280

<210> 5447  
 <211> 179  
 <212> PRT  
 <213> B.fragilis

<400> 5447

Asn	His	Cys	Phe	Leu	Pro	Leu	Phe	Phe	Cys	Cys	Lys	Asn	Pro	Ala	Met
1				5					10					15	
Ser	Val	Trp	Met	Tyr	Ile	Ala	Val	Thr	Asp	Pro	Gly	Tyr	Gly	Asn	Glu
			20					25					30		
Gln	Asn	Asp	Glu	Phe	Met	Lys	Asn	Met	Gly	Ile	Glu	Ala	Phe	Val	Lys
			35					40					45		
Tyr	Asn	Tyr	Phe	His	Lys	Glu	Gln	Lys	Arg	Thr	Trp	Asn	Lys	Asp	Ala
	50					55					60				
Phe	Thr	Ile	Gln	Asn	Leu	Lys	Lys	Ala	Ser	Ile	Ala	Gly	His	Leu	Pro
65					70					75				80	
Ser	Ile	Phe	Ile	Leu	Asn	Arg	Tyr	Phe	Tyr	Lys	Arg	Ser	Ser	Ala	Leu
				85					90					95	
Lys	His	Phe	Thr	Asn	Leu	Pro	Ile	Ala	Lys	Ser	Ile	Cys	Ser	Leu	Glu
			100					105					110		
Cys	Val	Ala	Ile	Asn	Glu	Lys	Arg	Ile	Asn	Val	Ser	Phe	Gly	Glu	His
		115					120						125		
Ala	Gly	Gly	Thr	Thr	Gly	Phe	Thr	Asn	Thr	Pro	Ser	Ser	Asn	Asn	Ile
	130					135					140				
Leu	Val	Thr	Ile	Asn	Val	Phe	Ser	Ile	Ser	Arg	Thr	Tyr	Arg	Gly	Met
145					150					155					160
Ile	Gly	Val	Glu	Val	Cys	Pro	Ile	Ser	Lys	Pro	Ser	Ser	Arg	Lys	His
				165					170					175	
Phe	Lys	Glu													

<210> 5448  
 <211> 265  
 <212> PRT  
 <213> B.fragilis

<400> 5448

Gly	Ser	Asn	Lys	Lys	Asp	Met	Gln	Lys	Gln	Ala	Lys	Glu	Ile	Lys	Lys
1				5					10					15	
His	Leu	Phe	Leu	Leu	Gly	Gly	His	Asp	Leu	Glu	Met	Gln	Thr	Ile	Val
			20					25					30		
Gln	Ile	Leu	Thr	Asp	Arg	Asn	Val	Ile	Phe	Lys	Asp	Arg	Tyr	Leu	Gln
			35				40					45			
Trp	Asp	Asn	Ala	Leu	Leu	Ser	Gln	Tyr	Glu	Glu	Glu	Ile	Gln	Gln	Tyr
	50					55					60				
Gly	Asn	Lys	Glu	Pro	Phe	Ile	Ile	Tyr	Gly	Val	Glu	Leu	Lys	Glu	Asp
65					70					75				80	
Ile	Thr	Pro	Pro	Thr	Asn	Tyr	Ile	Arg	Ile	Asp	His	His	Asn	Glu	Tyr
				85					90					95	
Ala	Thr	Tyr	Pro	Ser	Ala	Leu	Glu	Gln	Val	Ala	Ser	Ile	Leu	Asp	His
			100					105					110		
Pro	Leu	Asn	Arg	Tyr	Gln	Thr	Leu	Val	Ala	Ala	Asn	Asp	Lys	Ala	Tyr
		115					120					125			
Ile	Pro	Gly	Met	Leu	Glu	Ile	Gly	Ala	Ser	His	Glu	Glu	Ile	Asn	Leu
	130					135					140				
Ile	Arg	Gln	Glu	Asp	Arg	Lys	Ala	Gln	Gly	Val	Ile	Glu	Asp	Asp	Glu
145					150					155					160
Lys	Leu	Ala	Gln	Glu	Ala	Ile	Thr	Asn	Gly	Thr	Glu	Lys	Ile	Gly	Ser
				165					170					175	

Leu Tyr Val Val Phe Thr Thr Ala Asn Lys Phe Ser Pro Ile Cys Asp  
 180 185 190  
 Arg Leu Tyr Pro Tyr Glu Lys Leu Leu Ile Tyr Thr Pro Asn Glu Leu  
 195 200 205  
 Ile Tyr Tyr Gly Lys Gly Ile Asn Ser Ile Gln Lys Ile Leu Lys Arg  
 210 215 220  
 Tyr Thr Pro Ile Ser Asn Ile Phe Trp Gly Gly Gly Ile Asn Gly Phe  
 225 230 235 240  
 Ile Gly Thr Val Arg Asn Arg Leu Thr Thr Asn Glu Ile Leu Asn Ile  
 245 250 255  
 Val Glu Gln Ile Lys Leu Leu Glu Leu  
 260 265

<210> 5449  
 <211> 248  
 <212> PRT  
 <213> B.fragilis

<400> 5449

Lys Arg Asn Lys Met Lys Thr Ile Phe Arg Met Leu Ser Val Leu Leu  
 1 5 10 15  
 Leu Thr Thr Gly Leu Leu Ser Ser Cys Ile Gln Ile Gly Glu Gly Ile  
 20 25 30  
 Gln Pro Ser Lys Lys Leu Ile Thr Arg Asp Tyr Lys Val Lys Glu Phe  
 35 40 45  
 Asn Lys Ile Asp Ala Gly Thr Val Gly Asn Ile Tyr Tyr Thr Gln Ser  
 50 55 60  
 Thr Asp Gly Lys Thr Asp Leu Gln Ile Tyr Gly Pro Asp Asn Ile Val  
 65 70 75 80  
 Ala Leu Ile Gln Val Ala Val Lys Asp Asn Thr Leu Phe Leu Ser Ile  
 85 90 95  
 Asp Lys Ser Lys Lys Val Arg Asn Phe Lys Lys Met Lys Ile Thr Ile  
 100 105 110  
 Thr Ser Pro Thr Leu Asn Gly Ile Ser Phe Lys Gly Val Gly Asp Val  
 115 120 125  
 His Ile Glu Asn Gly Leu Thr Thr Asp Asn Leu Asp Ile Glu Ser Lys  
 130 135 140  
 Gly Val Gly Asn Val Asp Ile Gln Ser Leu Thr Cys Gln Lys Leu Asn  
 145 150 155 160  
 Val Gln Ser Met Gly Val Gly Asp Val Lys Leu Glu Gly Thr Ala Gln  
 165 170 175  
 Ile Ala Ala Leu His Ser Lys Gly Val Gly Asn Ile Glu Ala Gly Asn  
 180 185 190  
 Leu Arg Ala Asn Ala Val Glu Ala Ser Ser Gln Gly Val Gly Asp Ile  
 195 200 205  
 Thr Cys Asn Ala Thr Glu Ser Ile Asp Ala Ala Val Arg Gly Val Gly  
 210 215 220  
 Ser Ile Lys Tyr Lys Gly Ser Pro Thr Ile Lys Ser Leu Ser Lys Lys  
 225 230 235 240  
 Gly Val Gly Thr Ile Lys Asn Ile  
 245

<210> 5450  
 <211> 784  
 <212> PRT  
 <213> B.fragilis

<400> 5450

Lys Gln Asn Lys Lys Gly Ser Asn Asn Met Ile Arg His Tyr Leu Lys

1	5	10	15
Ile Ala Cys Arg Asn Leu Leu Lys Tyr Lys Thr Gln Ser Ile Ile Ser			
20	25	30	
Ile Leu Gly Leu Ala Ile Gly Phe Thr Cys Phe Ala Leu Ala Val Leu			
35	40	45	
Trp Ile Arg Tyr Glu Met Thr Tyr Asp Thr Phe His Glu Gly Phe Asp			
50	55	60	
Arg Ile His Leu Val Tyr Gln Lys Ser Ala Leu Ser Asp Thr Gly Val			
65	70	75	80
Thr Thr Thr Ile Pro Tyr Pro Val Ser Thr Ser Leu Glu Lys Gln Phe			
85	90	95	
Pro Glu Val Glu Asp Ala Cys Gly Phe Leu Phe Tyr Glu Gln Glu Val			
100	105	110	
Thr Val Asp Asp Gly Ala Ile Arg Gln Leu Tyr Glu Ile Asn Ala Asp			
115	120	125	
Ser Cys Phe Met His Met Phe Gly Ile Gln Val Leu Ser Gly Ser Leu			
130	135	140	
Asp Phe Leu Glu Ser Glu Glu Arg Ile Ala Leu Thr Glu His Ala Ala			
145	150	155	160
Lys Glu Leu Phe Gly Thr Glu Asn Pro Ile Gly Lys Glu Ile Lys Leu			
165	170	175	
Tyr Gly Ala Pro Lys Thr Val Cys Ala Ile Val Asn Gly Trp Asn Arg			
180	185	190	
His Thr Asn Leu Pro Phe Ser Ile Leu Thr Gly Gly Ile Arg Gln Trp			
195	200	205	
His Asn Ala Trp Tyr His Gly Gly Phe His Val Phe Ile Lys Leu His			
210	215	220	
Lys Glu Val Asn Ala Glu Thr Phe Gln Lys Lys Leu Glu Gln Thr Lys			
225	230	235	240
Leu Glu Ala Asp Ser Lys Gly Gly Ile Gln Asn Leu Met Val Met Pro			
245	250	255	
Ile Ser Lys Cys His Tyr Thr Val Leu Ala Asp Gln Asn Ala Ile Gln			
260	265	270	
Phe Ser Tyr Ile Leu Phe Phe Ser Ile Val Gly Gly Leu Val Ile Leu			
275	280	285	
Cys Ser Leu Ile Asn Tyr Leu Ser Leu Phe Val Ser Arg Leu Arg Met			
290	295	300	
Arg Ser Arg Glu Leu Ala Leu Arg Lys Val Cys Gly Ser Ser Asp Leu			
305	310	315	320
His Leu Phe Thr Leu Val Thr Glu Tyr Leu Leu Ile Leu Leu Ala			
325	330	335	
Ala Gly Leu Met Gly Met Ala Leu Ile Glu Leu Val Leu Ser Pro Phe			
340	345	350	
Lys Glu Leu Ser Gly Val Lys Glu Gly Asp Ile Tyr Trp Glu Ser Phe			
355	360	365	
Leu Tyr Phe Ala Leu Val Ile Gly Cys Ser Leu Ala Thr Phe Leu Pro			
370	375	380	
Val Thr Phe Tyr Phe Asn Lys Arg Thr Leu Gln Ser Asn Ile Gln Gln			
385	390	395	400
Lys Thr Val Asn Arg Tyr Gly Tyr Leu Gly Arg Lys Ile Ser Ile Val			
405	410	415	
Phe Gln Leu Ser Ile Ser Ile Cys Phe Ile Phe Cys Ile Ser Val Ile			
420	425	430	
Met Lys Gln Leu Tyr Tyr Leu Ser Thr Thr Asp Ile Gly Ile Glu Arg			
435	440	445	
Lys Asn Ile Ala Thr Leu Ser Met Tyr Pro Gln Asn Asn Leu Leu Pro			
450	455	460	
Ala Ala Asp Lys Ile Glu Gln Phe Pro Tyr Val Thr Gln Val Leu Lys			
465	470	475	480

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Gly His Phe Ser Leu Leu Pro Lys Thr Ala Ser Met Ala Met His Phe  
 485 490 495  
 Lys Asp Trp Asp Gly Lys Gln Pro Gly Asp Ala Glu Ile Asp Met Glu  
 500 505 510  
 Val Leu Met Glu Ser Glu Glu Leu Ala Gln Phe Tyr Gly Ile Arg Leu  
 515 520 525  
 Leu Lys Gly Lys Met Leu Lys Glu Gly Glu Arg Asp Ala Gly Thr Ile  
 530 535 540  
 Val Ile Asn Glu Thr Ala Ala Lys Ala Leu Gly Trp Asn Asp Pro Ile  
 545 550 555 560  
 Gly Lys Lys Leu Ile Arg Pro Asn Gly Thr Gly Thr Thr Val Ile Gly  
 565 570 575  
 Leu Val Lys Asp Phe His Thr Thr Ser Pro Thr Thr Pro Ile Lys Pro  
 580 585 590  
 Ile Ala Phe Ile Ala Lys Gly Phe Ser Gly Phe Asp Leu Gly Lys Gly  
 595 600 605  
 Asp Val Leu Ile Lys Tyr Arg Glu Gly Glu Trp Pro Lys Leu Lys Lys  
 610 615 620  
 Asp Ile Glu Gln Leu Cys Gln Lys Glu Tyr Pro Glu Asn Lys Ile Arg  
 625 630 635 640  
 Leu Ser Asn Met Glu Glu Thr Tyr Asp Asn Tyr Leu Lys Ser Glu Gln  
 645 650 655  
 Thr Leu Leu Lys Leu Leu Ser Cys Val Ala Val Val Cys Ile Leu Ile  
 660 665 670  
 Ala Val Phe Gly Val Phe Ser Leu Val Thr Leu Ala Cys Glu Gln Arg  
 675 680 685  
 Arg Lys Glu Ile Ala Ile Arg Lys Val Asn Gly Ala Thr Leu Gly Asn  
 690 695 700  
 Ile Leu Ser Ile Phe Ile Lys Glu Tyr Leu Ile Leu Leu Leu Cys Ala  
 705 710 715 720  
 Ser Phe Leu Ala Phe Pro Val Ser Tyr Met Ile Met Lys Ala Trp Leu  
 725 730 735  
 Glu Asn Tyr Val Glu Gln Ile Ser Ile Gly Val Ser Met Tyr Val Thr  
 740 745 750  
 Ile Phe Thr Gly Ile Gly Ile Ile Ile Thr Ala Cys Ile Gly Trp Arg  
 755 760 765  
 Val Trp Lys Ala Ala Arg Glu Asn Pro Ala Glu Val Val Lys Thr Glu  
 770 775 780

&lt;210&gt; 5451

&lt;211&gt; 131

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5451

Gln Leu Val Lys Gly Asp Asp Phe Val Asn Thr Ile Tyr Lys Phe Gly  
 1 5 10 15  
 Cys Lys Arg Phe Ile Gln Ser Leu Leu Asn His Ala Ala Arg Glu Phe  
 20 25 30  
 Phe Ile Val Lys Thr Ala Leu Ser Gly Lys Thr Asp Ser Thr Pro Lys  
 35 40 45  
 Leu Phe Gln Leu Ala Gly Ser Asp Ile Arg Cys His Asp Asn Asn Ser  
 50 55 60  
 Ile Leu Glu Val Asn His Ser Ala Ile Thr Val Ser Gln Pro Thr Phe  
 65 70 75 80  
 Val His His Leu Glu Lys Gln Ile Glu His Ile Gly Met Arg Leu Phe  
 85 90 95  
 Tyr Phe Val Lys Gln Tyr Asp Arg Ile Gly Phe Thr Ala Tyr Phe Leu  
 100 105 110



<210> 5453  
 <211> 60  
 <212> PRT  
 <213> B.fragilis

<400> 5453  
 Gln Val Pro Lys Ala Ile Ser Met Ile His Leu Ala Ser Met Ala Lys  
 1 5 10 15  
 Phe Met Gln Lys Asp Val Ile Tyr Gln Met Phe Trp Gln Gln Tyr Lys  
 20 25 30  
 Glu Ile Arg Glu Ile Tyr Leu Phe Thr Arg Gly Thr Ala Ser Pro Ser  
 35 40 45  
 Pro Thr Ala Arg Ile Tyr Leu His Ala Leu Val Gly  
 50 55 60

<210> 5454  
 <211> 98  
 <212> PRT  
 <213> B.fragilis

<400> 5454  
 Gly Leu Thr Asn Gly Arg Val Ala Gln Leu Asn Arg Val Ala Asp Tyr  
 1 5 10 15  
 Gly Ser Ala Gly Tyr Arg Phe Glu Ser Cys Arg Gly His Ser Lys Lys  
 20 25 30  
 Ile Thr Ile Asn Gly Arg Val Ala Gln Leu Asn Arg Val Ala Asp Tyr  
 35 40 45  
 Gly Ser Ala Gly Tyr Arg Phe Glu Ser Cys Arg Asp His Lys Asn Leu  
 50 55 60  
 His Asn Gln Ile Met Glu Val Phe Cys Phe Pro Cys Ile Ile Ser Phe  
 65 70 75 80  
 Ile Gly Ser Tyr Leu Asn Ser Glu Gly Phe Leu Phe Leu Ile Gly Ser  
 85 90 95  
 Leu Tyr

<210> 5455  
 <211> 94  
 <212> PRT  
 <213> B.fragilis

<400> 5455  
 Ile Leu Lys Lys Ile Phe Met Asn Tyr Lys Lys Lys Ile Ile Cys Leu  
 1 5 10 15  
 Leu Val Leu Phe Thr Ile Val Val Val Asn Val Leu Asn Val Val Val  
 20 25 30  
 Lys Ser Asp Asp Ala Glu Thr Leu Thr Leu Ser Gly Ile Glu Ala Val  
 35 40 45  
 Ala Ala Thr Tyr Glu Asn Ser Pro Gly Asn Tyr Thr Gly Ala His Asn  
 50 55 60  
 Gln Tyr Cys Thr Ser Pro Lys Asn Ala Thr Gly Cys Val Ser Asp Pro  
 65 70 75 80  
 Asp Pro Thr Arg Thr Cys Ser Tyr Ser Ile Phe Cys Lys Lys  
 85 90

<210> 5456  
 <211> 476  
 <212> PRT



&lt;213&gt; B.fragilis

&lt;400&gt; 5456

Leu Asn Arg Lys Lys Asn Ile Met Asn Gln Leu Thr Ala Ile Leu Lys  
 1 5 10 15  
 Gln His Thr Pro Met Ile His Phe Gln His Asn Glu Ser Gly Ala Thr  
 20 25 30  
 Leu Arg Ala Ser Glu Val Lys Pro Leu Leu Asp Lys Phe Ile Leu Thr  
 35 40 45  
 Lys Leu Gly Asn Gly Asp Ile Arg Glu Gly Arg Leu Tyr Ala Lys Lys  
 50 55 60  
 Asn Asn Trp Leu Ile Asp Asn Glu Lys Asn Tyr Ala Leu Asn Tyr Lys  
 65 70 75 80  
 Leu Ser Ile Ser Leu Gln Lys Lys Ser Arg Leu Glu Tyr Leu Ile Thr  
 85 90 95  
 Ser Ser Thr Phe Pro Leu Pro Thr Glu Arg Pro Ser Asn Phe Phe Thr  
 100 105 110  
 Ile Gln Asn Ser Pro Tyr Phe Ala Gln Glu Lys Cys Val Gly Ile Asn  
 115 120 125  
 Thr Asn Ser Thr Ile Ile Leu Lys Lys Ser Asn Ser Asp Pro Arg Lys  
 130 135 140  
 Lys Glu Ala Glu Phe Lys Glu Lys Asn Trp Ser Gln Ile Asp Lys Lys  
 145 150 155 160  
 Gly Leu Glu Trp Gln Asp Phe Thr Ile Lys Ile Phe Ser Leu Lys Gly  
 165 170 175  
 Asp Leu Ile Asn Lys Ile Gln Thr Tyr Leu Pro Ala Phe Phe Ile Cys  
 180 185 190  
 His Asn Phe Gly Thr Arg Asn Asn Lys Gly Phe Gly Ser Phe Thr Val  
 195 200 205  
 Glu Tyr Ile Asn Asn Gln Lys Asn Ile Cys Asn Val Glu Asp Thr Leu  
 210 215 220  
 Lys Glu Asn Phe Ala Phe Val Tyr Lys Lys Lys Ile Ala Leu Ser Cys  
 225 230 235 240  
 Gln Ser Thr Leu Asp Phe Ile Tyr Ile Tyr Asn Gln Ile Phe Ser Thr  
 245 250 255  
 Ile Lys Lys Asp Tyr Gln Ile Leu Lys Ser Gly Tyr Asn Phe Arg Asn  
 260 265 270  
 Glu Tyr Ile Lys Ser Leu Leu Phe Cys Tyr Phe Val Ser Lys Tyr Pro  
 275 280 285  
 Asn Tyr Arg Trp Glu Lys Arg Lys Met Lys Gln Leu Ile Lys Ala Arg  
 290 295 300  
 Gly Tyr Glu Leu Lys Gly Asp His Ser Pro Ile Ser Gly Ile Arg Glu  
 305 310 315 320  
 Asn Asp Asn Ser Trp Asn Asp Pro Asn Pro Asn Gly Tyr Asn Tyr Ala  
 325 330 335  
 Tyr Ile Arg Ala Ile Leu Gly Leu Ala Glu Gln Tyr Glu Phe Gln Leu  
 340 345 350  
 Glu Thr Pro Tyr Gln Lys Ala Ile Val Lys Ile Lys Ser Ala Asn Asn  
 355 360 365  
 Cys Ile Ser Arg Tyr Lys Ser Pro Leu Leu Phe Lys Ile Ile Asn Asn  
 370 375 380  
 Ser Ile Tyr Leu Val Gly Asn Glu Ile Asn Thr Glu Ile Leu Asn Lys  
 385 390 395 400  
 Pro Phe Gln Tyr Asn Tyr Ile Glu Gln Thr Lys Asn Lys Asn Met Arg  
 405 410 415  
 Thr Gly Lys Ser Glu Ile Thr Glu Arg Thr Met His Ile Asn Glu Ile  
 420 425 430  
 Glu Met Asn Tyr Asn Asn Arg Ile Asn Tyr His Tyr Thr Pro Thr Ser  
 435 440 445

Phe Ser Leu Ile Asp Phe Met Gln Tyr Ala Met Ser Tyr Lys Lys Asn  
 450 455 460  
 Gly Lys Asn Ile Leu Asn Tyr Ile Pro Leu Lys Gln  
 465 470 475

<210> 5457  
 <211> 295  
 <212> PRT  
 <213> B.fragilis

<400> 5457  
 Ser Met Arg Lys Ile Lys Val Gly Ile Ile Gln Gln Ala Asn Thr Ser  
 1 5 10 15  
 Asp Ile Arg Ile Asn Leu Met Asn Leu Ala Lys Ser Ile Glu Ala Cys  
 20 25 30  
 Ala Ala Asn Gly Ala His Leu Val Val Leu Gln Glu Leu His Asn Ser  
 35 40 45  
 Leu Tyr Phe Cys Gln Thr Glu Asn Thr Asp Leu Phe Glu Leu Ala Glu  
 50 55 60  
 Pro Ile Pro Gly Pro Ser Thr Gly Phe Tyr Ser Glu Leu Ala Ala Ala  
 65 70 75 80  
 Asn Arg Ile Val Leu Val Thr Ser Leu Phe Glu Lys Arg Ala Pro Gly  
 85 90 95  
 Leu Tyr His Asn Thr Ala Val Val Phe Asp Arg Asp Gly Ser Ile Ala  
 100 105 110  
 Gly Lys Tyr Arg Lys Met His Ile Pro Asp Asp Pro Ala Tyr Tyr Glu  
 115 120 125  
 Lys Phe Tyr Phe Thr Pro Gly Asp Ile Gly Phe Glu Pro Ile Gln Thr  
 130 135 140  
 Ser Leu Gly Lys Leu Gly Val Leu Val Cys Trp Asp Gln Trp Tyr Pro  
 145 150 155 160  
 Glu Ala Ala Arg Leu Met Ala Leu Lys Gly Ala Glu Ile Leu Ile Tyr  
 165 170 175  
 Pro Thr Ala Ile Gly Trp Glu Ser Thr Asp Thr Asp Asp Glu Lys Lys  
 180 185 190  
 Arg Gln Leu Asn Ala Trp Ile Ile Ser Gln Arg Ala His Ala Val Ala  
 195 200 205  
 Asn Gly Leu Pro Val Ile Ser Val Asn Arg Val Gly His Glu Pro Asp  
 210 215 220  
 Pro Ser Gly Gln Thr Asn Gly Ile Leu Phe Trp Gly Asn Ser Phe Val  
 225 230 235 240  
 Ala Gly Pro Gln Gly Glu Tyr Leu Ala Gln Ala Gly Asn Asp Arg Ser  
 245 250 255  
 Glu Asn Met Ile Val Glu Val Asp Leu Glu Arg Ser Glu Asn Val Arg  
 260 265 270  
 Arg Trp Trp Pro Phe Leu Arg Asp Arg Arg Ile Asp Glu Tyr Gly Asn  
 275 280 285  
 Leu Thr Lys Arg Phe Ile Asp  
 290 295

<210> 5458  
 <211> 612  
 <212> PRT  
 <213> B.fragilis

<400> 5458  
 Thr Phe Gly Asn Asn Thr Glu Ser Glu Leu Ile Cys Thr Phe Ala Asp  
 1 5 10 15  
 Tyr Phe Asn Lys Asn Ile Asn Asn Ile Leu Asn Met Phe Arg Thr His



Asn Ala Tyr Asp Met Val Ile Asn Gly Val Glu Val Gly Gly Gly Ser  
 500 505 510  
 Ile Arg Ile His Asp Ser Gln Leu Gln Asn Lys Met Phe Glu Leu Leu  
 515 520 525  
 Gly Phe Thr Pro Glu Arg Ala Gln Glu Gln Phe Gly Phe Leu Met Asn  
 530 535 540  
 Ala Phe Lys Phe Gly Ala Pro Pro His Gly Gly Leu Ala Tyr Gly Leu  
 545 550 555 560  
 Asp Arg Trp Val Ser Leu Phe Ala Gly Leu Asp Ser Ile Arg Asp Cys  
 565 570 575  
 Ile Ala Phe Pro Lys Asn Asn Ser Gly Arg Asp Val Met Leu Asp Ala  
 580 585 590  
 Pro Ala Ala Leu Asp Pro Ser Gln Leu Glu Glu Leu Asn Leu Ile Val  
 595 600 605  
 Asp Ile Lys Glu  
 610

<210> 5459  
 <211> 415  
 <212> PRT  
 <213> B.fragilis

<400> 5459  
 Tyr Ser Met Lys Lys Tyr Pro Lys Ile Gly Ile Arg Pro Thr Ile Asp  
 1 5 10 15  
 Gly Arg Gln Gly Gly Val Arg Glu Ser Leu Glu Glu Lys Thr Met Asn  
 20 25 30  
 Leu Ala Lys Ala Val Ala Glu Leu Ile Thr Ser Asn Leu Lys Asn Gly  
 35 40 45  
 Asp Gly Thr Pro Val Glu Cys Val Ile Ala Asp Gly Thr Ile Gly Arg  
 50 55 60  
 Val Ala Glu Ser Ala Ala Cys Ala Glu Lys Phe Glu Arg Glu Gly Val  
 65 70 75 80  
 Gly Ala Thr Ile Thr Val Thr Ser Cys Trp Cys Tyr Gly Ala Glu Thr  
 85 90 95  
 Met Asp Met Asn Pro Tyr Tyr Pro Lys Ala Val Trp Gly Phe Asn Gly  
 100 105 110  
 Thr Glu Arg Pro Gly Ala Val Tyr Leu Ala Ala Val Leu Ala Gly His  
 115 120 125  
 Ala Gln Lys Gly Leu Pro Ala Phe Gly Ile Tyr Gly Arg Asp Val Gln  
 130 135 140  
 Asp Leu Asn Asp Asn Ser Ile Pro Ala Asp Val Ala Glu Lys Ile Leu  
 145 150 155 160  
 Arg Phe Ala Arg Ala Ala Gln Ala Val Ala Thr Met Arg Gly Lys Ser  
 165 170 175  
 Tyr Leu Ser Met Gly Ser Val Ser Met Gly Ile Ala Gly Ser Ile Val  
 180 185 190  
 Asn Pro Asp Phe Phe Gln Glu Tyr Leu Gly Met Arg Asn Glu Ser Ile  
 195 200 205  
 Asp Leu Thr Glu Ile Ile Arg Arg Met Ala Glu Gly Ile Tyr Asp Lys  
 210 215 220  
 Glu Glu Tyr Ala Lys Ala Met Ala Trp Thr Glu Lys Tyr Cys Lys Lys  
 225 230 235 240  
 Asn Glu Gly Asn Asp Phe Asn Ile Pro Glu Lys Thr Lys Thr Arg Ala  
 245 250 255  
 Gln Lys Asp Glu Asp Trp Glu Phe Ile Val Lys Met Thr Ile Ile Met  
 260 265 270  
 Arg Asp Leu Met Gln Gly Asn Pro Lys Leu Lys Glu Leu Gly Phe Lys  
 275 280 285

Glu Glu Ala Leu Gly His Asn Ala Ile Ala Ala Gly Phe Gln Gly Gln  
 290 295 300  
 Arg Gln Trp Thr Asp Phe Tyr Pro Asn Gly Asp Phe Ser Glu Ala Leu  
 305 310 315 320  
 Leu Asn Thr Ser Phe Asp Trp Asn Gly Ile Arg Glu Ala Phe Val Val  
 325 330 335  
 Ala Thr Glu Asn Asp Ala Cys Asn Gly Val Ala Met Leu Phe Gly His  
 340 345 350  
 Leu Leu Thr Asn Arg Ala Gln Ile Phe Ser Asp Val Arg Thr Tyr Trp  
 355 360 365  
 Ser Pro Glu Ala Val Lys Arg Val Thr Gly Lys Glu Leu Thr Gly Met  
 370 375 380  
 Ala Ala Asn Gly Ile Ile His Leu Ile Asn Ser Gly Ala Thr Thr Leu  
 385 390 395 400  
 Asp Gly Thr Gly Gln Gln Thr Asn Ala Asn Gly Leu Asn His Gly  
 405 410 415

<210> 5460  
 <211> 136  
 <212> PRT  
 <213> B.fragilis

<400> 5460

Leu Lys Thr Asn Lys Ser Glu Lys Met Asn Tyr Met Ile Gln His Tyr  
 1 5 10 15  
 Leu Lys Thr Ala Ile Arg Asn Leu Leu Lys Tyr Lys Thr His Ser Ile  
 20 25 30  
 Ile Ser Ala Ile Cys Leu Ser Val Gly Met Thr Cys Phe Ser Ile Ile  
 35 40 45  
 His Phe Phe Ile Asn Glu Ile Asp Gly Ala Ser Arg Asn Met Pro Asn  
 50 55 60  
 Phe Glu Gln Arg Ile Ser Ile Arg Met Ile Asn Ser Asn His Glu Val  
 65 70 75 80  
 Gly Gly Trp Gly Trp Ser Leu Asn Ser Ser Glu Ile Arg Thr Leu Thr  
 85 90 95  
 Glu His Pro Ile Pro Gly Ile Lys Gln Ile Cys Phe His Ser Phe Gln  
 100 105 110  
 Arg Glu Asp Glu Val Val Phe Ile Asn Arg Glu Gln Gly Arg Lys Ala  
 115 120 125  
 Leu His His Leu Ile Tyr Gly Tyr  
 130 135

<210> 5461  
 <211> 164  
 <212> PRT  
 <213> B.fragilis

<400> 5461

Lys Lys Lys Lys Thr Met Asn Trp Lys Leu Val Glu Cys Glu Ile Ala  
 1 5 10 15  
 Leu Ile Val Ser Leu Thr Val Ile Glu Cys Val Asn Met Gly Gln Asn  
 20 25 30  
 Ser Pro Lys Asp Ile Thr Cys Leu Thr Val Phe Phe Cys Ile Met Ile  
 35 40 45  
 Val Leu Leu Pro Leu Ile Gly Val Leu Gln Gln Trp His Leu Ser Cys  
 50 55 60  
 Phe Gln Asn Arg Gln Lys Glu Lys Glu Tyr Gln Ala Lys Gln Glu Thr  
 65 70 75 80  
 Asp Glu Lys Met Lys Thr Trp Leu Leu Ala Arg Glu Ala Ile Ile Lys

				85						90					95				
Asp	Lys	Glu	Lys	Glu	Glu	Leu	Thr	Asn	Lys	Val	Asn	Gly	Leu	Gln	Gln				
			100					105					110						
Lys	Cys	Asp	Ser	Leu	Ile	Glu	Asn	Gln	Glu	Asn	Glu	Leu	Lys	Lys	Phe				
		115					120					125							
Tyr	Leu	Ser	Ile	Leu	Ser	Ile	Ile	Gly	Thr	Lys	Asp	Asp	Leu	Lys	Ser				
	130					135					140								
Ile	Glu	Glu	Asn	Phe	Lys	Lys	Met	Lys	Asp	Phe	Phe	Glu	Glu	Tyr	Lys				
145					150					155					160				
Lys	Ile	Thr	Lys																

<210> 5462  
 <211> 61  
 <212> PRT  
 <213> B.fragilis

Gly	Ala	Gly	Lys	Lys	Ser	Leu	Thr	Ser	Ser	His	Ile	Trp	Ile	Leu	Ile				
1				5				10					15						
Leu	Ile	Ser	Phe	His	Ile	Ile	Met	His	Pro	Ser	Tyr	Met	Ala	Asn	Ala				
			20					25					30						
Phe	Pro	Thr	Thr	Pro	Lys	Glu	Val	Val	Leu	Ser	Glu	Ser	Cys	Ala	Arg				
		35					40					45							
Lys	Val	Tyr	Gly	Lys	Glu	Gln	Pro	Gly	Arg	Ala	His	Tyr							
	50					55					60								

<210> 5463  
 <211> 105  
 <212> PRT  
 <213> B.fragilis

Arg	Val	Asn	Leu	Gln	Pro	Lys	Cys	Ser	Phe	Pro	Val	Arg	Leu	Ser	Glu				
1				5				10					15						
Lys	Ile	Ser	Pro	Asn	His	Leu	Val	Arg	Val	Val	Ser	Tyr	Ile	Val	Asp				
			20					25				30							
Ala	Leu	Asp	Ile	Ser	Tyr	Leu	Leu	Ser	Ala	Tyr	Asn	Gly	Gly	Gly	Thr				
		35					40					45							
Asn	Ser	Tyr	His	Pro	Arg	Met	Ile	Leu	Lys	Val	Leu	Phe	Tyr	Ala	Tyr				
	50					55				60									
Leu	Asn	Asn	Ile	Tyr	Ser	Cys	Arg	Lys	Thr	Gln	Lys	Ala	Leu	Gln	Lys				
65					70					75					80				
Asn	Ile	His	Ile	Met	Trp	Leu	Ser	Gly	Asn	Ser	Thr	Ser	Asn	Phe	Arg				
			85					90						95					
Thr	Ile	Asn	Asp	Phe	Arg	Gly	Lys	Val											
		100					105												

<210> 5464  
 <211> 61  
 <212> PRT  
 <213> B.fragilis

Phe	Lys	Ser	Leu	Tyr	Phe	Ile	Tyr	Thr	Leu	Gln	Gln	Lys	Met	Tyr	Arg				
1				5				10					15						
Val	Gln	Lys	Glu	Arg	Leu	Phe	Leu	Ile	Leu	Ala	Leu	Met	Val	Gly	Ile				
		20					25					30							
Arg	Lys	Ile	Asp	Gln	Ser	Ser	Asp	Pro	Lys	Glu	Trp	Val	Val	Lys	Ser				

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<210> 5465
<211> 255
<212> PRT
<213> B.fragilis
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Cys 1	Asn	Glu	Asp	Ser 5	Gln	Lys	Tyr	Arg	Val 10	Phe	Pro	Trp	Arg	Ala 15	Arg
Thr	Ala	Tyr	Cys 20	Cys	Cys	Leu	Thr	His 25	Pro	Leu	Ser	Val	Asp 30	Thr	Leu
Asn	Ile	Leu	Trp 35	Arg	Thr	Met	Leu	Asn 40	Glu	Arg	Gln	Lys 45	Phe	Pro	Ile
Arg	Thr 50	Gly	Leu	Lys	Leu	Thr 55	Val	Ser	Asp	Asn 60	Asn	Gly	Val	Val	Arg
Ser 65	Ser	Phe	Ser	Pro	Asp 70	Ser	Leu	Ser	Cys	Leu 75	Ser	Tyr	Ser	Ser	Ile
Phe	Thr	Tyr	Tyr	Val 85	Gly	Tyr	Arg	Cys	Glu 90	Ile	Glu	Ile	Leu	Gly 95	Phe
Val	Ser	Ile	Ser 100	Phe	Phe	Ser	Val	Phe 105	Val	Asn	Ile	Val 110	Trp	Thr	Leu
Ile	Gly	Val 115	Val	Val	Ala	Phe	Val 120	Leu	Cys	Val	Ile	Leu 125	Thr	Ile	Tyr
Ile	Tyr 130	Lys	Leu	Ser	Val	His 135	Pro	Pro	Lys	Ile 140	Lys	Glu	Val	Thr	Thr
Tyr 145	Val	Gln	Thr	Val	Ala 150	Val	Lys	Lys	Gly	Thr 155	Leu	Pro	Ile	Tyr	Asp
Leu	Lys	Asp	Asp 165	Leu	Lys	Leu	Asp	Val	Gly 170	Lys	Gly	Val	Leu	Ile 175	Cys
Glu	Asn	Met 180	Glu	Val	Ser	Leu	Thr 185	Pro	Gln	Gln	Arg	Val 190	Leu	Leu	Val
Leu	Phe	Ile 195	Lys	Ala	Glu	Asn	His 200	Thr	Leu	Ser	Met	Ser 205	Gln	Ile	Met
Ala	Asp 210	Val	Trp	Pro	Gly	Lys 215	Ser	Ile	Ser	Pro	Asp 220	Cys	Phe	His	Lys
Ala 225	Ile	Glu	Arg	Leu	Arg 230	Asp	Leu	Leu	Arg	Gln 235	Leu	Pro	Met	Thr	Ile
Gln	Ile	Glu	Tyr 245	Leu	Gly	Glu	Glu	Ile 250	Tyr	Gln	Met	Gln	Ile	Leu 255	

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<210> 5466
<211> 67
<212> PRT
<213> B.fragilis
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[illegible][illegible]

<210> 5467  
 <211> 608  
 <212> PRT  
 <213> B.fragilis

<400> 5467

Gly	Thr	Leu	Leu	Lys	Ile	Val	Lys	Leu	Lys	Glu	Ser	Glu	Lys	Asp	Lys
1				5					10					15	
Ser	Thr	Tyr	Tyr	Lys	Val	Val	Asn	Val	Ile	Arg	Asn	Leu	Pro	Lys	Thr
			20					25					30		
Leu	Asn	Val	Glu	Thr	Asp	Ile	Tyr	Phe	Ser	His	Leu	Arg	Glu	Glu	Asn
		35					40					45			
Arg	Gln	Gln	Gly	Tyr	Ile	Thr	Glu	Gly	Thr	Leu	Glu	Thr	Ala	Asp	Gly
	50					55					60				
Leu	Asn	Lys	Ala	Asn	Glu	Ser	Leu	Lys	Gly	Ile	Thr	Thr	Leu	His	Asn
65					70					75					80
Asn	Glu	Met	Ala	Tyr	Phe	Ile	Ala	Asn	Lys	Glu	Ala	Asp	Ser	Tyr	His
				85					90					95	
Asp	Pro	Gln	Arg	Met	Ile	Gly	Ile	Ala	Phe	Ile	Thr	Phe	Leu	Ser	Ser
			100					105					110		
Leu	Ile	Leu	Leu	Ser	Gly	Met	Ile	Asn	Phe	Leu	Lys	Phe	Ile	Ile	Gln
		115					120						125		
Ser	Phe	Tyr	Asn	Arg	Asn	Arg	Glu	Leu	Ala	Leu	Arg	Lys	Ser	Leu	Gly
	130					135					140				
Ala	Ser	Pro	Lys	Ser	Leu	Phe	Ala	Leu	Leu	Phe	Thr	Glu	Ala	Phe	Trp
145					150					155					160
Met	Leu	Thr	Phe	Ser	Leu	Leu	Phe	Ser	Leu	Val	Leu	Ser	Glu	Cys	Thr
				165					170					175	
Cys	Leu	Leu	Leu	Thr	Thr	Tyr	Ile	Pro	Pro	Lys	Glu	Met	Ile	Pro	Ile
			180					185					190		
Asp	Ile	Gln	Thr	Leu	Tyr	Gly	Ile	Gln	Val	Lys	Leu	Tyr	Ile	Gly	Leu
		195				200						205			
Leu	Leu	Ile	Cys	Thr	Leu	Val	Met	Leu	Tyr	Pro	Ile	Arg	Arg	Leu	Gln
	210					215					220				
Arg	Ser	Gly	Leu	Ala	Gly	His	Met	Lys	Thr	Asn	Ser	His	Arg	His	Leu
225					230					235					240
Phe	Arg	Asn	Ile	Met	Met	Cys	Val	Gln	Leu	Cys	Val	Cys	Ile	Phe	Phe
				245					250					255	
Leu	Gly	Met	Ser	Ile	Ala	Ile	His	Leu	Phe	Asn	Ser	Val	Gly	Ser	Val
			260					265						270	
Leu	Tyr	Leu	Pro	Leu	Ser	Asp	Lys	Glu	Thr	Asn	Ser	Thr	Leu	Cys	Phe
		275					280					285			
Glu	Met	Asn	Ser	Val	Thr	Leu	Gly	Lys	Asn	Lys	Asp	Ala	Ile	Leu	Ser
	290					295					300				
Gln	Ile	Lys	Met	Leu	Pro	Gly	Val	Glu	Asn	Ile	Ser	Ser	Ala	Leu	Met
305					310					315					320
Ser	Gly	Asn	Tyr	Asn	Ser	Phe	Leu	Thr	Ser	Asp	Tyr	Glu	Ser	Ala	Asp
				325					330					335	
His	Arg	Thr	Leu	Thr	Val	Arg	Val	Arg	Gln	Gly	Asp	Pro	Ser	Tyr	Phe
			340					345					350		
Gln	Phe	Phe	Arg	Ile	Pro	Phe	Arg	Gly	Glu	Ile	Val	Glu	Pro	His	Thr
		355					360					365			
Ser	Asn	Val	Val	Tyr	Ile	Ser	Glu	Ala	Phe	Gln	Lys	Gln	Leu	Glu	Asn
	370					375					380				
Asp	Ser	Val	Ser	Gly	Asn	Val	Lys	Leu	Gly	Lys	Glu	Asn	Tyr	Arg	Ile
385					390					395					400
Ala	Gly	Thr	Tyr	Lys	Ala	Cys	Tyr	Gly	Glu	Asn	Ile	Ser	Glu	His	Asn
				405					410					415	

CC # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



[illegible]

<400> 5468

Met 1	Lys	Thr	Leu	Leu 5	Asn	Ile	Lys	Leu	His 10	Leu	Ser	Lys	Lys	Asn 15	Ile
Phe	Thr	Ile	Leu 20	Val	Phe	Ile	Leu 25	Val	Leu	Ser	Gly	Thr	Thr	Gly	Cys
Ile	Gln	His 35	Lys	Ser	Asp	Gln	Lys 40	Arg	Leu	Pro	Ala	Leu	Ser	Phe	Thr
Val	Asn	Gly 50	Glu	Ser	Phe	Glu 55	Met	Ile	Pro	Val	Glu 60	Gly	Gly	Thr	Phe
Ile 65	Met	Gly	Gly	Thr 70	Ser	Glu	Gln	Gly	Asn 75	Asp	Cys	Glu	Asn	Asn	Glu 80
Lys	Pro	Thr	His 85	Glu	Thr	Leu	Pro	Phe 90	Phe	Tyr	Ile	Gly	Lys	Tyr	
Glu	Val	Thr 100	Gln	Lys	Leu	Trp	Lys	Ala 105	Val	Met	Gly	Thr	Asp	Phe	Asp
Gln	Ser	Tyr 115	Asn	Ser	Gly	Cys	Glu 120	Asp	Cys	Pro	Ala	Glu	Tyr	Ile	Ser
Trp	Asn	Asp 130	Thr	Gln	Lys	Phe 135	Ile	Ser	Lys	Leu	Asn 140	Thr	Leu	Thr	Asn
Lys 145	Thr	Phe	Arg	Leu 150	Pro	Thr	Asp	Ile	Glu	Trp	Glu 155	Tyr	Ala	Ala	Arg
Gly	Gly	Lys	Tyr 165	Ser	Glu	Lys	Tyr	Lys	Tyr 170	Ser	Gly	Ser	Asn	Asp	Ile
Asp	Glu	Val 180	Ala	Trp	Tyr	Ile	Glu 185	Asn	Tyr	Gln	Lys	Ser	Lys	Tyr	Gly
Asp	Lys	Gly 195	Thr	Thr	His	Pro	Val 200	Gly	Met	Lys	Lys	Pro	Asn	Glu	Leu
Gly	Leu	Tyr 210	Asp	Met	Ser	Gly 215	Asn	Val	Trp	Glu	Trp 220	Cys	Asp	Asn	Trp

Tyr Thr Gln Glu Tyr Ser Gln Asn Gly Lys Ser Val His Pro Gly Trp  
 225 230 235 240  
 Pro Phe Asn Gly Thr Ser Ala Phe Phe Arg Arg Val Leu Arg Gly Gly  
 245 250 255  
 Ser Trp Gly Gly Thr Ala Lys Gly Cys Arg Val Ser Tyr Ile Asp Tyr  
 260 265 270  
 Asp Val Pro Asn Tyr Arg Asp Glu Tyr Gly Gly Phe Arg Leu Val Leu  
 275 280 285  
 Val Pro Asp Ser Val Gln Thr Ala Asn  
 290 295

<210> 5469  
 <211> 279  
 <212> PRT  
 <213> B.fragilis

<400> 5469

Ile Thr Val Cys Thr Ile Ser Arg Ile Phe Ala Gly Arg Ile Arg Ile  
 1 5 10 15  
 Tyr Phe Gln Gln Tyr Met Lys Lys Phe Ile Leu Asp Leu Thr Val Thr  
 20 25 30  
 Glu Asn Leu Arg Leu His Thr Asn Tyr Val Leu Leu Lys Leu Thr Ser  
 35 40 45  
 Gln Thr Val Leu Pro Asp Met Leu Pro Gly Gln Phe Ala Glu Ile Arg  
 50 55 60  
 Ile Asp Gly Ser Pro Thr Thr Phe Leu Arg Arg Pro Ile Ser Ile Asn  
 65 70 75 80  
 Tyr Val Asp Arg Gln Arg Asn Glu Val Trp Phe Leu Ile Gln Leu Val  
 85 90 95  
 Gly Asp Gly Thr Lys Arg Leu Ala Gln Val Asn Arg Gly Glu Ile Ile  
 100 105 110  
 Asn Val Val Leu Pro Leu Gly Asn Ser Phe Thr Met Pro Glu Lys Pro  
 115 120 125  
 Ser Asp Lys Leu Leu Leu Val Gly Gly Gly Val Gly Thr Ala Pro Met  
 130 135 140  
 Leu Tyr Leu Gly Glu Gln Leu Ala Lys Asn Gly Ser Lys Pro Thr Phe  
 145 150 155 160  
 Leu Leu Gly Ala Arg Ser Asn Lys Asp Leu Leu Gln Leu Glu Asp Phe  
 165 170 175  
 Ala Ala Tyr Gly Glu Val Tyr Thr Thr Thr Glu Asp Gly Ser His Gly  
 180 185 190  
 Glu Lys Gly Tyr Val Thr Gln His Ser Ile Leu Asn Lys Ile Lys Phe  
 195 200 205  
 Glu Gln Ile Tyr Thr Cys Gly Pro Lys Pro Met Met Met Ala Val Ala  
 210 215 220  
 Lys Tyr Ala Lys Gly Asn Asp Ile Asn Cys Glu Val Ser Leu Glu Asn  
 225 230 235 240  
 Thr Met Ala Cys Gly Ile Gly Ala Cys Leu Cys Cys Val Glu Asn Thr  
 245 250 255  
 Thr Glu Gly His Leu Cys Val Cys Lys Glu Gly Pro Val Phe Asn Ile  
 260 265 270  
 Asn Lys Leu Leu Trp Gln Ile  
 275

<210> 5470  
 <211> 101  
 <212> PRT  
 <213> B.fragilis



&lt;400&gt; 5472

Ile Phe Ile Ser Lys Met Ala Arg Glu Ala Lys Asn Glu Pro Lys Glu  
 1 5 10 15  
 Leu Thr Val Glu Gln Lys Leu Lys Ala Leu Tyr Gln Leu Gln Thr Thr  
 20 25 30  
 Leu Ser Lys Ile Asp Glu Ile Lys Thr Leu Arg Gly Glu Leu Pro Leu  
 35 40 45  
 Glu Val Gln Asp Leu Glu Asp Glu Ile Ala Gly Leu Ser Thr Arg Ile  
 50 55 60  
 Asp Lys Ile Lys Ser Glu Val Asp Glu Leu Lys Ser Ala Ile Ala Gly  
 65 70 75 80  
 Lys Arg Val Glu Ile Glu Ala Ala Lys Ala Ser Val Glu Lys Tyr Lys  
 85 90 95  
 Ser Gln Gln Asp Asn Val Arg Asn Asn Arg Glu Tyr Asp Phe Leu Thr  
 100 105 110  
 Lys Glu Ile Glu Phe Gln Ser Leu Glu Met Glu Leu Cys Glu Lys Arg  
 115 120 125  
 Ile Lys Glu Phe Thr Ala Glu Glu Gln Glu Lys Ser Glu Glu Ile Glu  
 130 135 140  
 Lys Asn Thr Lys Ala Leu Glu Glu Arg Gln Lys Asp Leu Asp Gln Lys  
 145 150 155 160  
 Lys Asn Glu Leu Asp Glu Ile Ile Glu Glu Thr Lys Gln Glu Glu Glu  
 165 170 175  
 Lys Leu Arg Asp Lys Ala Lys Asp Leu Glu Thr Lys Ile Glu Pro Arg  
 180 185 190  
 Leu Leu Gln Ser Phe Lys Arg Ile Arg Lys Asn Ser Arg Asn Gly Leu  
 195 200 205  
 Gly Ile Val Tyr Val Gln Arg Asp Ala Cys Gly Gly Cys Phe Asn Lys  
 210 215 220  
 Ile Pro Pro Gln Arg Gln Leu Asp Ile Arg Ser Arg Lys Lys Ile Ile  
 225 230 235 240  
 Val Cys Glu Tyr Cys Gly Arg Ile Met Ile Asp Pro Glu Leu Ala Gly  
 245 250 255  
 Val Glu Ile Glu His Lys Val Glu Glu Ala Pro Val Thr Thr Lys Arg  
 260 265 270  
 Ala Ile Arg Arg Lys Ala Glu  
 275

&lt;210&gt; 5473

&lt;211&gt; 452

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5473

Tyr Leu Ser Ser Gln Lys Met Ala Val Ala Arg Gly Arg Leu Ser Ala  
 1 5 10 15  
 Ser Ser Cys Asn Ser Ser Ser Ser Ser Ile Gly Asp Ile Val Ala Ser  
 20 25 30  
 Leu Cys Cys Trp His Glu Ile Ile Lys Lys Lys Glu Arg Ser Asn Gly  
 35 40 45  
 Lys Asn Ala Phe Ile Gly Leu Ser Leu Tyr Lys Leu Gly Gly Lys Tyr  
 50 55 60  
 Ile Lys Lys Ser Ile Lys Ala Arg Gln Gly Ala Ile Phe Phe Leu Tyr  
 65 70 75 80  
 Leu Gln Ala Asn Phe Leu Leu Lys Met Lys Ile Lys Glu Ile Val Ser  
 85 90 95  
 Ala Leu Glu Arg Phe Ala Pro Leu Pro Leu Gln Asp Gly Phe Asp Asn  
 100 105 110

Ala Gly Leu Gln Ile Gly Leu Thr Asp Ala Glu Thr Thr Gly Ala Leu  
 115 120 125  
 Leu Cys Leu Asp Val Thr Glu Ala Val Leu Asp Glu Ala Ile Ala Ser  
 130 135 140  
 Gly Cys Asn Leu Ile Ile Ser His His Pro Leu Ile Phe Lys Gly Tyr  
 145 150 155 160  
 Lys Ser Ile Thr Gly Lys Asp Tyr Val Glu Arg Cys Ile Leu Lys Ala  
 165 170 175  
 Ile Lys Asn Asp Ile Val Ile Tyr Ser Ala His Thr Asn Leu Asp Asn  
 180 185 190  
 Val Pro Gly Gly Val Asn Phe Lys Ile Ala Glu Lys Ile Gly Leu Lys  
 195 200 205  
 Asn Val Arg Ile Leu Asp Pro Lys Glu Ser Ser Leu Ile Lys Leu Val  
 210 215 220  
 Thr Phe Val Pro Ser Ala Gln Ala Glu Glu Val Arg Asn Ala Leu Phe  
 225 230 235 240  
 Thr Ala Gly Cys Gly Cys Ile Gly Asn Tyr Asp Ser Cys Ser Tyr Asn  
 245 250 255  
 Thr Glu Gly Glu Gly Thr Phe Arg Ala Gln Glu Gly Ser His Pro Phe  
 260 265 270  
 Cys Gly Thr Val Gly Glu Leu His Arg Glu Thr Glu Val Arg Ile Glu  
 275 280 285  
 Thr Ile Leu Pro Glu Tyr Lys Lys Gly Glu Val Ile Arg Ala Leu Leu  
 290 295 300  
 Ser Lys His Pro Tyr Glu Glu Pro Ala Tyr Asp Leu Tyr Pro Leu His  
 305 310 315 320  
 Asn Ser Trp Ala Gln Val Gly Ser Gly Ile Val Gly Glu Leu Glu Glu  
 325 330 335  
 Pro Glu Ser Glu Leu Glu Phe Leu Lys Arg Ile Lys Lys Ile Phe Glu  
 340 345 350  
 Val Gly Cys Leu Lys His Asn Lys Leu Thr Gly Arg Leu Ile Gln Lys  
 355 360 365  
 Val Ser Leu Cys Gly Gly Ala Gly Ala Phe Leu Ile Pro Gln Ala Val  
 370 375 380  
 Arg Ser Gly Ala Asp Val Phe Ile Thr Gly Glu Ile Lys Tyr His Asp  
 385 390 395 400  
 Tyr Phe Gly Arg Glu Thr Asp Ile Leu Leu Ala Glu Ile Gly His Tyr  
 405 410 415  
 Glu Ser Glu Gln Tyr Thr Lys Glu Ile Phe Tyr Ser Ile Ile Arg Asp  
 420 425 430  
 Leu Phe Pro Asn Phe Ala Leu Gln Phe Ser Lys Val Asn Thr Asn Pro  
 435 440 445  
 Ile Lys Tyr Leu  
 450

&lt;210&gt; 5474

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5474

Thr Tyr Asn Gly Glu Glu Gln Cys Glu Glu Leu Cys Phe His Ile Gln  
 1 5 10 15  
 Cys Lys Phe Val Lys Gly Asp Met Glu Val Ile Cys Met Asn Ile Ala  
 20 25 30  
 Leu Asn Tyr Ala Asn Val Ser Arg Ser Lys Met Asn Gln Glu Leu Leu  
 35 40 45  
 Arg Phe Ile Gly Tyr Ile Ser Phe Asn Cys Val Ser Val Leu Ile  
 50 55 60

<210> 5475  
 <211> 396  
 <212> PRT  
 <213> B.fragilis

<400> 5475

Val	Ala	Ser	Gly	Ile	Tyr	Tyr	Tyr	Trp	Cys	Ser	Val	Arg	Ser	Leu	Phe
1				5					10					15	
Met	Ile	Tyr	Ser	Leu	Lys	Thr	Lys	Lys	Met	Gly	Ile	Met	Val	Gly	Leu
			20					25					30		
Pro	Thr	Ser	Gly	Gly	Thr	Glu	Lys	Asp	Leu	Gln	Leu	Asn	Phe	Gly	Leu
			35				40					45			
Thr	Val	Asn	Asp	Gln	Val	Glu	Met	Leu	Ala	Pro	Phe	Leu	Pro	Ala	Glu
	50					55					60				
Trp	Phe	Leu	Gln	Ser	Gly	Ile	Gln	Leu	Thr	Trp	Pro	His	Ala	Gly	Thr
65					70					75					80
Asp	Trp	Ala	Tyr	Met	Leu	Ala	Glu	Val	Gln	Glu	Cys	Phe	Ile	Asn	Ile
				85					90					95	
Ala	Arg	Glu	Ile	Ala	Lys	Arg	Glu	Leu	Leu	Leu	Ile	Val	Thr	Pro	Tyr
			100					105					110		
Pro	Glu	Glu	Val	Arg	Lys	Gln	Ile	Ile	Gly	Thr	Val	Asn	Met	Asp	Asn
			115				120					125			
Val	Arg	Phe	Leu	Lys	Cys	Asp	Thr	Asn	Asp	Thr	Trp	Ala	Arg	Asp	His
	130					135					140				
Gly	Ala	Ile	Thr	Leu	Met	Asp	Thr	Gly	Gly	Ala	Ser	Leu	Leu	Asp	Phe
145					150					155					160
Thr	Phe	Asn	Gly	Trp	Gly	Glu	Lys	Phe	Glu	Ala	Arg	Leu	Asp	Asn	Gln
				165					170					175	
Ile	Thr	Arg	Arg	Ala	Val	Glu	Ala	Gly	Ala	Leu	Lys	Gly	Gln	Tyr	Lys
			180					185					190		
Asp	Cys	Leu	Asn	Phe	Val	Leu	Glu	Gly	Gly	Ser	Ile	Glu	Ser	Asp	Gly
		195					200					205			
Ala	Gly	Thr	Leu	Leu	Thr	Thr	Ser	Glu	Cys	Leu	Leu	Ser	Pro	His	Arg
	210					215						220			
Asn	Ser	Pro	Met	Asn	Arg	Val	Asp	Ile	Glu	Glu	Tyr	Leu	Cys	Arg	Val
225				230						235					240
Phe	His	Leu	Gln	Arg	Val	Leu	Trp	Leu	Asp	His	Gly	Tyr	Leu	Ser	Gly
				245					250					255	
Asp	Asp	Thr	Asp	Ser	His	Ile	Asp	Thr	Leu	Ala	Arg	Phe	Cys	Ser	Pro
			260					265					270		
Asp	Thr	Ile	Ala	Tyr	Val	Lys	Cys	Thr	Asp	Ser	Glu	Asp	Glu	His	Tyr
		275					280					285			
Glu	Ala	Leu	Cys	Lys	Met	Glu	Glu	Gln	Leu	Lys	Thr	Phe	Arg	Thr	Thr
	290					295					300				
Ser	Gly	Ala	Pro	Tyr	Arg	Leu	Leu	Ala	Leu	Pro	Met	Ala	Asp	Lys	Ile
305					310					315					320
Glu	Val	Glu	Gly	Glu	Arg	Leu	Pro	Ala	Thr	Tyr	Ala	Asn	Phe	Leu	Ile
				325					330					335	
Met	Asn	Asp	Val	Val	Leu	Tyr	Pro	Thr	Tyr	Asn	Gln	Pro	Glu	Asn	Asp
			340					345					350		
Lys	Leu	Ala	Lys	Glu	Val	Leu	Cys	Glu	Ala	Phe	Pro	Thr	Tyr	Glu	Val
		355					360					365			
Val	Gly	Ile	Asp	Cys	Arg	Ala	Leu	Ile	Lys	Gln	His	Gly	Ser	Leu	His
	370					375					380				
Cys	Val	Thr	Met	Gln	Tyr	Pro	Thr	Gly	Val	Ile	Lys				
385					390						395				

<210> 5476

<211> 815  
 <212> PRT  
 <213> B.fragilis

<400> 5476

Lys	Pro	Gly	Gly	Ser	Ser	Lys	Asn	Arg	Ile	Lys	Lys	Ser	Asn	Asn	Met
1			5					10					15		
Ile	Gln	His	Tyr	Phe	Lys	Ile	Ala	Cys	Arg	Asn	Leu	Leu	Lys	Tyr	Lys
		20					25					30			
Val	Gln	Asn	Ile	Leu	Ser	Ile	Val	Gly	Leu	Ser	Ile	Gly	Phe	Thr	Ala
		35				40					45				
Phe	Leu	Leu	Gly	Gly	Tyr	Trp	His	Tyr	Trp	Glu	Tyr	His	Phe	Asp	Ser
	50				55					60					
Phe	His	Pro	Gln	Ser	Ser	Arg	Thr	Tyr	Ala	Leu	Thr	Thr	Thr	Gly	Ile
65				70					75						80
Phe	Lys	Thr	Ala	Asp	Gly	Ser	Val	Gly	Glu	Leu	Asn	Gln	Ile	His	Gln
			85					90					95		
Met	Val	Glu	Lys	Asp	Leu	Val	Thr	Phe	Pro	Glu	Ile	Ala	Lys	Val	Cys
			100					105					110		
His	Val	Ser	Lys	Val	Lys	Tyr	Glu	Phe	Glu	Lys	Asp	Thr	Lys	Ser	Trp
		115				120						125			
Ile	Gly	Met	Lys	Ile	Asp	Ser	Thr	Phe	Phe	Asp	Ile	Phe	Gln	Cys	Lys
	130				135						140				
Leu	Ile	Glu	Gly	Ser	Tyr	Lys	Val	Pro	Phe	Asn	Val	Asn	His	Val	
145				150					155					160	
Ile	Leu	Thr	Gln	Lys	Met	Ala	Asn	Phe	Tyr	Phe	Gly	Asp	Ser	Ser	Cys
			165					170						175	
Val	Gly	Lys	Glu	Leu	Lys	Ile	Asn	Asp	Lys	Leu	Ser	Tyr	Thr	Ile	Ala
			180					185					190		
Gly	Val	Met	Glu	Asn	Tyr	Pro	Gln	Asn	Ser	Asp	Phe	Lys	Phe	Glu	Tyr
		195				200						205			
Leu	Ile	Leu	Ala	Thr	Pro	Ser	Pro	Asn	Gln	Val	Lys	Arg	Asn	Thr	Thr
	210					215					220				
Tyr	Val	Trp	Leu	His	Pro	Ser	Ala	Asp	Ala	Ala	His	Leu	Ser	Lys	Lys
225				230					235						240
Ile	Ala	Ala	Tyr	Arg	Val	Lys	Glu	Pro	Asp	Thr	Lys	Trp	Ser	Lys	Tyr
			245					250						255	
Ser	Glu	Trp	Arg	Phe	His	Leu	Arg	Pro	Leu	Pro	Glu	Ile	His	Thr	Arg
		260					265						270		
Cys	Ser	Pro	Glu	Leu	Lys	Gly	Arg	Leu	Gln	His	Ile	Arg	Ile	Leu	Ala
		275				280						285			
Thr	Ala	Gly	Ile	Leu	Ala	Phe	Ala	Ser	Ala	Leu	Met	Asn	Leu	Leu	Val
	290					295					300				
Leu	Phe	Ile	Gly	Gln	Gln	Gln	Arg	Lys	Ala	Arg	Tyr	Asn	Ala	Thr	Phe
305				310					315						320
Ser	Thr	Leu	Gly	Ala	Ser	Ile	Tyr	Ser	Leu	Ile	Gly	Lys	Asn	Leu	Leu
			325					330						335	
Glu	Leu	Thr	Leu	Pro	Leu	Phe	Ile	Ala	Phe	Leu	Leu	Ser	Met	Ala	Phe
		340						345					350		
Ile	Glu	Phe	Leu	Phe	Pro	Phe	Tyr	Lys	Asp	Tyr	Thr	Ser	Leu	Val	Ala
		355					360					365			
Glu	Ser	Ser	Ser	Tyr	Tyr	Asn	Gly	Val	Ile	Gln	Ser	Ile	Thr	Arg	Gln
	370					375					380				
Glu	Val	Leu	Lys	Ala	Ser	Tyr	Trp	Ile	Tyr	Pro	Leu	Cys	Cys	Leu	Ile
385				390						395					400
Phe	Leu	Val	Leu	Ser	Thr	Val	Pro	Ile	Val	Gly	Leu	Leu	Lys	Arg	Asn
			405					410						415	
Ser	Arg	Gly	Thr	Ser	Leu	Ala	Leu	Arg	Asn	Gly	Leu	Ile	Ile	Gly	Gln
			420					425					430		

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Ile Phe Ile Gly Ser Leu Phe Leu Leu Thr Ser Cys Met Phe Tyr Ser
    435                      440                      445
Gln Tyr Arg Phe Met Ser Arg Thr Asp Lys Gly Leu Val Thr Asp His
    450                      455                      460
Ile Trp Gln Ile Asp Leu Gly Phe Asp Ala Thr Tyr Asn Thr Asp Cys
465                      470                      475                      480
Thr Pro Phe Ile Glu Ala Leu Lys Gln Asn Ser Ala Ile Asp Asp Val
    485                      490                      495
Thr Ala Leu Thr Gln Pro Leu Leu Val Leu Arg Gly Glu Trp Tyr Cys
    500                      505                      510
Ser Phe Ile Thr Gln Phe Pro Ile Glu Gly Arg Asn Asn Val Asp Glu
    515                      520                      525
Ala Thr Glu Asp Asn Cys Ile Val Val Gln Lys Asn Phe Leu Ser Phe
    530                      535                      540
Phe Gly Met Lys Met Lys Glu Gly Glu Trp Ile Gln Asp Gln Gly Thr
545                      550                      555                      560
Arg Asp Ile Val Ile Asn Glu Thr Gly Ala Arg Glu Leu Asn Ile Pro
    565                      570                      575
Ser Leu Thr Gly Arg Leu Ile Leu Ser Asp Asp Glu Asp Ser Glu Asn
    580                      585                      590
His Ala Val Pro Thr Arg Ile Ser Gly Ile Leu Arg Asp Phe Tyr Tyr
    595                      600                      605
Cys Pro Met Gln Tyr Pro Leu Ser Lys Val Phe Phe Met Tyr Gln Asn
    610                      615                      620
Asn Ala Asp Ala Ala Arg Gly Tyr Asn Gly Phe Arg Tyr Phe Tyr Ile
625                      630                      635                      640
Lys Val His Pro Asp Asn Glu Lys Gln Ala Leu Gln Tyr Ala Arg Arg
    645                      650                      655
Ile Tyr Ser Gln Tyr Ser Lys Lys Glu Ile Ser Glu Asp Met Gln Ile
    660                      665                      670
Ile Gln Leu Ser Thr Leu Met Glu Leu Phe Asn Arg Pro Glu Lys Thr
    675                      680                      685
Met Phe Arg Ile Phe Leu Leu Leu Ala Val Leu Cys Ile Leu Ile Ser
    690                      695                      700
Ser Phe Gly Val Phe Phe Leu Val Ser Leu Ser Thr Glu Gln Arg Lys
705                      710                      715                      720
Lys Glu Ile Ala Ile Arg Lys Val Asn Gly Ala Gln Phe Ser Asp Ile
    725                      730                      735
Leu Tyr Leu Phe Leu Lys Glu Tyr Leu Trp Leu Thr Leu Val Ser Asn
    740                      745                      750
Ala Ile Ala Leu Pro Leu Gly Tyr Leu Phe Ile Lys Arg Trp Leu Glu
    755                      760                      765
Thr Tyr Ala Tyr His Thr Asp Ile His Gly Trp Leu Phe Val Cys Val
    770                      775                      780
Phe Leu Phe Thr Cys Ile Ile Val Ile Leu Ser Val Met Arg Gln Val
785                      790                      795                      800
Val Val Ala Ala Lys Ile Asn Pro Ala Glu Ser Val Lys Ser Glu
    805                      810                      815

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&lt;210&gt; 5477

&lt;211&gt; 396

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5477

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Leu Phe Met Gly Leu Leu Gln Glu Lys Leu Ala Lys Tyr Asp Leu Pro
1                      5                      10                      15
Gln Gln Ile Lys Ala Lys Gly Val Tyr Pro Tyr Phe Arg Cys Ile Glu
    20                      25                      30

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Ser Glu Gln Asn Thr Glu Val Ile Met Ser Gly Arg Lys Val Leu Met  
 35 40 45  
 Phe Gly Ser Asn Ser Tyr Leu Gly Leu Thr Asn His Pro Lys Val Ile  
 50 55 60  
 Glu Ala Ala Val Glu Ala Thr Arg Lys Tyr Gly Thr Gly Cys Ala Gly  
 65 70 75 80  
 Ser Arg Phe Leu Asn Gly Thr Leu Asp Leu His Leu Gln Leu Glu Lys  
 85 90 95  
 Glu Leu Ala Glu Phe Val Gly Lys Glu Asp Ala Ile Ile Tyr Ser Thr  
 100 105 110  
 Gly Phe Gln Val Asn Leu Gly Val Val Ser Cys Val Thr Gly Arg Glu  
 115 120 125  
 Asp Tyr Val Ile Cys Asp Glu Leu Asp His Ala Ser Ile Val Glu Gly  
 130 135 140  
 Arg Arg Leu Ser Phe Ser Thr Ile Leu Lys Phe Lys His Asn Asp Met  
 145 150 155 160  
 Glu Ser Leu Glu Lys Glu Leu Gln Lys Cys Arg Pro Asp Ala Val Lys  
 165 170 175  
 Leu Ile Val Val Asp Gly Val Phe Ser Met Glu Gly Asp Ile Ala Asn  
 180 185 190  
 Leu Pro Glu Ile Val Arg Leu Ser Lys Lys Tyr Asp Ala Asn Ile Met  
 195 200 205  
 Val Asp Glu Ala His Gly Leu Gly Val Leu Gly Asn His Gly Arg Gly  
 210 215 220  
 Thr Cys Asp His Phe Gly Leu Thr Lys Glu Val Asp Leu Ile Met Gly  
 225 230 235 240  
 Thr Phe Ser Lys Ser Leu Ala Ala Ile Gly Gly Phe Ile Ala Ala Asp  
 245 250 255  
 Glu Ser Ile Ile Asn Tyr Leu Arg His Asn Ser Arg Ser Tyr Ile Phe  
 260 265 270  
 Ser Ala Ser Asn Thr Pro Ala Ala Thr Ala Ala Ala Arg Ala Ala Leu  
 275 280 285  
 Gln Ile Met Lys Asn Glu Pro Glu Arg Ile Glu His Leu Trp Asp Ile  
 290 295 300  
 Thr Asn Tyr Ser Leu Lys Cys Phe Arg Glu Leu Gly Phe Glu Ile Gly  
 305 310 315 320  
 His Thr Ser Thr Pro Ile Ile Pro Leu Tyr Val Arg Asp Met Glu Lys  
 325 330 335  
 Thr Phe Met Val Thr Lys Met Leu Phe Asp Glu Gly Val Phe Val Asn  
 340 345 350  
 Pro Val Val Pro Pro Ala Cys Ser Pro Asn Asp Thr Leu Ile Arg Phe  
 355 360 365  
 Ser Leu Met Ala Thr His Ser Lys Glu Gln Ile Asp Phe Ala Ile Gly  
 370 375 380  
 Lys Leu Val Lys Cys Phe Lys Ala Leu Asp Leu Leu  
 385 390 395

&lt;210&gt; 5478

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5478

Phe Val Phe Met Arg Lys Ser Asn Asp Ile Ile Phe Tyr Ser Leu Leu  
 1 5 10 15  
 Ala Leu Cys Leu Phe Thr Asn Cys Leu Phe Ile Gly Tyr Tyr Tyr Tyr  
 20 25 30  
 Gln Gln Asn Arg Glu Val Leu Leu Gly Gln Glu Leu Glu His Gln Lys  
 35 40 45



1. The first group of people who are interested in the study of the history of the world are the historians. They are people who are interested in the past and who want to know what happened in the past. They are people who are interested in the events that have shaped the world as we know it today.

Gln 1	Leu	Leu	Met	Lys 5	Thr	Val	Arg	Glu	Thr 10	Ile	Leu	Glu	Pro	Ile 15	Ile
Asn	Ile	Val	Gln 20	Val	Pro	Lys	Met	Leu 25	Gln	Asp	Val	Phe	Arg 30	Ile	Leu
Ile	Gln 35	Pro	Ala	Leu	Val	His	Ile 40	Gln	Phe	Phe	Val	Lys 45	Asn	Asn	Ser
Tyr	Leu 50	Phe	Lys	Cys	Tyr	Arg	Lys 55	Arg	Cys	Phe	Pro 60	Leu	Pro	Val	Tyr
Ser 65	Asn	Asn	Met	Leu 70	Val	Met	Lys	Tyr	Leu 75	Asn	Leu	Phe	Ile	Phe	Val 80
Leu	Leu	Leu	Ala 85	Gly	Cys	Asn	Arg	Pro 90	Val	Lys	His	Ser	Asp 95	Ile	Ile
Gln	Ala	Asp	Thr 100	Met	Val	Ser	Ile	Ile 105	Pro	Gln	Glu	Asp	Thr 110	Ile	Thr
Leu	Ser	Ala 115	Leu	Phe	Ser	Arg	Cys 120	Glu	Ile	Val	Lys	Leu 125	Asn	Asp	Ile
Val	Leu 130	Ala	Ser	Ile	Asn	Lys 135	Val	Phe	Lys	Tyr	Asp 140	Ser	Leu	Trp	Ile
Val 145	Gln	Gly	Lys	Ser 150	Asp	Gln	Gly	Gly	Val	His 155	Leu	Phe	Asn	Asn	Glu
Gly	Arg	Tyr	Leu 165	Lys	Thr	Val	Leu	Lys	Trp 170	Gly	Gln	Gly	Pro	Glu	Glu
Ala	Tyr	Asp	Ile 180	Trp	Ser	Ile	Lys	Leu 185	Leu	Asp	Gly	Ser	Ile 190	Tyr	Leu
Leu	Ile	Asn 195	Ser	Gly	Thr	Glu	Val 200	Val	Glu	Tyr	Ser	Leu 205	Gln	Lys	Gln
Lys	Met 210	Val	Glu	Arg	Phe	Arg 215	Leu	Pro	Ser	Glu	Ile 220	Leu	Ser	Ala	Thr
Asp 225	Phe	Val	Val	Asp 230	Asn	Gly	Gly	Asn	Tyr	Ile 235	Phe	Leu	Lys	Ser	Ile
Ser	Arg	Glu	Lys 245	Lys	Lys	Glu	Glu	Tyr	Lys 250	Leu	Tyr	Val	Tyr	Asn	Lys
Lys	Glu	Gly	Thr 260	Ile	Val	Asn	Arg	Ile 265	Leu	Asn	Met	Asp 270	Lys	Lys	Ser
Ser	Glu	Tyr 275	Ile	Ser	Phe	Asp	Gln 280	Ser	Asp	Cys	Leu 285	Tyr	Arg	Val	Gln
Asp	Glu	Ile	Tyr 290	Tyr	Tyr	Glu 295	Val	Phe	Arg	Asn 300	Gly	Ile	Cys	Arg	Leu
Ser 305	Ala	Asn	Asp	Met 310	Thr	Gly	Tyr	Ile	Ala 315	Phe	Lys	Gln	Asn	Glu	Tyr
Thr	Phe	Pro	Glu 325	Lys	Glu	Leu	Tyr	Asn 330	Glu	Asp	His	Thr	Phe	Gln	Ser
Phe	Ile	Asp	Val 340	Cys	Glu	Asn	Ser	Pro 345	Phe	Ile	Trp	Ala	His 350	Arg	Asn
Leu	Phe	Glu 355	Gly	Glu	Arg	Phe	Val 360	Ser	Ser	Thr	Tyr	Met 365	Tyr	Lys	Lys
Glu	Leu	Phe 370	Trp	Asn	Ile	Ile 375	Asp	Lys	Ser	Asp	Tyr 380	Ser	Val	His	Ser
Tyr 385	Lys	Trp	Val	Tyr 390	Asp	Asp	Leu	Ile	Leu 395	Asn	Glu	Val	Val	Pro	Val
Glu	Asp	Tyr	Leu 405	Tyr	Arg	Ala	Asn	Val 410	Gln	Glu	Asn	Ile	His 415	Tyr	Tyr



Ala Ile Asn Gln Phe Asn Gln Thr Val Leu Thr Ala Val Gln Glu Thr  
 370 375 380  
 Asp Asn Ala Met Asn Ala Tyr Arg Asn Ser Ile Lys Gln Ile Val Ala  
 385 390 395 400  
 Leu Arg Glu Val Arg Asn Gln Gly Gln Glu Thr Leu Thr Leu Ser Leu  
 405 410 415  
 Glu Leu Tyr Lys Gln Gly Leu Thr Pro Phe Gln Asn Val Leu Asp Ala  
 420 425 430  
 Gln Arg Ser Leu Leu Ser Tyr Glu Asn Gln Leu Val Gln Ala Arg Gly  
 435 440 445  
 Tyr Ser Leu Leu Gln Leu Ile Ala Met Tyr Gln Ala Leu Gly Gly Gly  
 450 455 460  
 Trp Ser Gly Asn Leu Asn Asn  
 465 470

<210> 5482

<211> 135

<212> PRT

<213> B.fragilis

<400> 5482

Asn Asn Ile Met Ala His Arg Leu Asn Thr Asn Lys Gln Phe Met Val  
 1 5 10 15  
 Gly Asn Gly Ile Leu Ala Phe Ala Val Ile Phe Val Val Val Ile Phe  
 20 25 30  
 Val Tyr Met Ser Leu Arg Leu Gln Arg Glu Lys Glu Ala Asn Arg His  
 35 40 45  
 Phe Ser Glu Thr Tyr Ser Ile Gln Leu Thr Lys Gly Phe Val Gly Asp  
 50 55 60  
 Ser Ile Ser Leu Phe Val Asn Asp Ser Leu Ile Met Asn Lys Gln Ile  
 65 70 75 80  
 Lys Glu Glu Pro Thr Ala Ile Glu Val Glu Arg Phe Ala Glu Gln Ser  
 85 90 95  
 Ala Leu Met Ile Val Asn Asn Gln Thr Glu Thr Val Ala Ala Phe Asp  
 100 105 110  
 Leu Ser Glu Lys Gly Gly Thr Tyr Arg Phe Glu Lys Asp Ile Asp Gly  
 115 120 125  
 Ile Lys Gln Leu Pro Gln Lys  
 130 135

<210> 5483

<211> 63

<212> PRT

<213> B.fragilis

<400> 5483

Lys Leu Ile Ile Trp Leu Ser Val Met Gly Cys Asn Thr Ile Val Ala  
 1 5 10 15  
 Gly Trp Ile Met Ile Leu Lys Val Ile Arg Phe Cys Arg Ile Phe Arg  
 20 25 30  
 Ile Met Thr Leu Tyr Lys Ile Asn Asn Val Asn Asp Ser Phe Arg His  
 35 40 45  
 Leu Leu Ser Ser Phe Gln Glu Val Asn Ile Val Asn Ala Arg Ser  
 50 55 60

<210> 5484

<211> 152

<212> PRT

<213> B.fragilis

&lt;400&gt; 5484

Cys Tyr Ser Ile Leu Phe Ile Ile Ser Val Ile Lys Ile Val Ile Cys  
 1 5 10 15  
 Phe Ile His Tyr Lys Asn Asn Asp Thr Phe Ala Glu Ile Asn Cys Glu  
 20 25 30  
 Lys Arg Met Val Met Ser Trp Gly Lys Thr Ile Leu Gly Cys Leu Ile  
 35 40 45  
 Gly Gly Tyr Ala Leu Leu Gly Leu Leu Gly Gly Asn Tyr Ala Tyr Glu  
 50 55 60  
 Gln Glu Val Lys Ala Leu His Val Tyr Ala Asp Ser Val Phe His Glu  
 65 70 75 80  
 Ala Phe His Val Glu Leu Gln Lys Arg Gly Met Asp Gln Val Glu Ser  
 85 90 95  
 Trp Arg Tyr Gly Cys Glu Asp Ser Phe Val Ser Ser Val Asp Thr Ala  
 100 105 110  
 Phe Lys Lys Val Thr Ile Gln Asp Glu Tyr Gly Thr Tyr Ser Phe Arg  
 115 120 125  
 Val Asp Ala Met Lys Ile Arg Lys Asn Ile Val Ser Ser Pro Gly Glu  
 130 135 140  
 Gln Gly Leu His Thr Val Val Val  
 145 150

&lt;210&gt; 5485

&lt;211&gt; 125

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5485

Ala Met Asn Ile Glu Glu Phe Arg Glu Tyr Cys Leu Ser Phe Lys Gly  
 1 5 10 15  
 Val His Asp Arg Met Pro Phe Lys Lys Ala Thr Ser Glu Tyr Asp Arg  
 20 25 30  
 Asp Leu Leu Val Phe Tyr Val Met Asp Lys Trp Phe Cys Phe Val Asn  
 35 40 45  
 Ile Asp Ala Phe Asp Phe Cys Asn Ile Lys Cys Asn Ala Gly Gln Ile  
 50 55 60  
 Glu Asp Leu Leu Asp Lys Tyr Glu Gly Val Gln Pro Gly Tyr His Met  
 65 70 75 80  
 Asn Lys Lys His Trp Ile Ser Val Tyr Phe Asp Lys Asp Val Pro Asp  
 85 90 95  
 Lys Met Ile Lys Asp Leu Val Lys Gln Ser Tyr Glu Ile Val Val Ser  
 100 105 110  
 Ser Leu Ala Arg Arg Glu Arg Glu Ile Leu Gln Ala Met  
 115 120 125

&lt;210&gt; 5486

&lt;211&gt; 247

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5486

Thr Ser Ile Phe Leu Leu Phe Cys Phe Leu Leu Pro Asn Ile Ala Ile  
 1 5 10 15  
 Ile Thr Thr Ile Thr Ile Thr Asn Asp Met Lys Asn Thr His Val Leu  
 20 25 30  
 Leu Ile Lys Phe Lys Asn Lys Ile Ser Asp Asp Glu Val Gln Phe Phe  
 35 40 45  
 Arg Ser Ser Ile Ile Gln Lys Leu Gly Asp Gln Pro Asp Ile Leu Tyr

50		55		60	
His Asn His Val Glu Lys Asn Lys Tyr Arg Tyr Ser Tyr Pro Leu Ile					
65		70		75	80
Gln Tyr Lys Asn Ile Glu Gln Gln Ala Thr Ile Val Cys Ile Asp Gln					
	85		90		95
Gly Thr Lys Ala Ile Glu Lys Phe Phe Ser Gln Cys Asp Phe Asn Phe					
	100		105		110
Gln Leu Gly Asn Arg Lys Val Asn Met Lys Phe Ala Ser Val Thr Pro					
	115		120		125
Tyr Lys Leu Leu Ile Glu Arg Gln Ser Lys Met Ile Asn Tyr His Ile					
	130		135		140
His Asn Trp Leu Pro Leu Asn Ser Asp Asn Tyr Lys Lys Tyr Gln Asn					
	145		150		155
Ile Ser Ile Leu Ser Glu Arg Ile Asn Phe Leu Glu Lys Ile Leu Ile					
	165		170		175
Gly Asn Ile Leu Ser Phe Thr Lys Gly Val Asn Tyr Phe Ile Asp Phe					
	180		185		190
Pro Leu Gln Cys Lys Leu Leu Gln Leu Ser Phe Ala Lys Leu Ile Ser					
	195		200		205
Asn Lys Asn Ile Lys Leu Met Ser Phe Asp Ala Asp Phe Gln Cys Asn					
	210		215		220
Leu Asn Leu Pro Asp Tyr Ile Gly Ile Gly Lys His Thr Ser Ile Gly					
	225		230		235
Tyr Gly Thr Ile Thr Arg Asn					240
	245				

&lt;210&gt; 5487

&lt;211&gt; 383

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5487

Arg Leu Val Ile Met Lys Lys Leu Met Tyr Ile Phe Leu Ile Leu Pro		
1	5	10
Leu Ile Met Ser Gly Cys Lys Gly Lys Lys Glu Thr Glu Arg Gly Gly		
	20	25
Met Pro Thr Pro Glu Ile Ser Val Ala Tyr Pro Leu Val Gln Asn Ile		
	35	40
Thr Leu Thr Lys Asp Tyr Pro Gly Tyr Leu Thr Thr Glu Gln Thr Val		
	50	55
Asn Leu Val Ala Arg Val Asn Gly Ala Leu Gln Ser Ala Ser Phe Thr		
	65	70
Pro Gly Thr Arg Val Lys Gln Gly Gln Leu Leu Phe Val Ile Glu Pro		
	85	90
Thr Ile Tyr Lys Asp Asn Val Thr Gln Ala Glu Ala Gln Leu Lys Thr		
	100	105
Ala Leu Ala Gln Leu Glu Tyr Ala Arg Asn Asn Tyr Ser Arg Met Lys		
	115	120
Glu Ala Leu Lys Ser Asp Ala Val Ser Arg Ile Gln Val Leu Gln Ala		
	130	135
Glu Ser Asn Val Ala Glu Ala Thr Ala Ala Val Ser Asn Ala Glu Ala		
	145	150
Thr Leu Asn Thr Ala His Thr Asn Leu Gly Tyr Cys Tyr Ile Arg Ala		
	165	170
Pro Phe Asn Gly Thr Val Ser Arg Ser Leu Tyr Asp Val Gly Ser Tyr		
	180	185
Ile Ser Gly Ala Ala Gln Pro Val Thr Leu Ala Thr Ile Tyr Lys Asp		
	195	200
Asp Arg Met Tyr Thr Tyr Phe Asn Val Ala Asp Asn Gln Trp Leu Ser		

210	215	220
Met Leu Leu Ser Gln Asn Gly Lys Glu Lys Glu Leu Pro Lys Asn Val		
225	230	235
Ile Val Arg Leu Gly Glu Asn Gly Thr Gln Asn Tyr Pro Ala Thr Leu		
245	250	255
Asp Tyr Leu Ser Pro Asn Val Asp Leu Asn Thr Gly Thr Leu Asn Val		
260	265	270
Arg Ala Asn Leu Asp Asn Pro Lys Gly Ile Leu Lys Ser Gly Leu Tyr		
275	280	285
Val Ser Ile Thr Leu Pro Tyr Ala Glu Ala Lys Gln Ala Val Leu Val		
290	295	300
Pro Glu Ala Ser Ile Gly Thr Asp Gln Leu Gly Lys Tyr Leu Tyr Ile		
305	310	315
Val Asn Asp Ser Asn Ile Val Arg Tyr Arg His Ile Glu Pro Gly Gln		
325	330	335
Leu Val Asn Asp Thr Leu Arg Gln Ile Lys Ser Gly Leu Ser Pro Lys		
340	345	350
Glu Gln Tyr Val Thr Thr Ala Leu Met Lys Val Arg Asp Gly Met Lys		
355	360	365
Val Lys Pro Val Ser Val Asn His Glu Ser Pro Thr Ser Asn Arg		
370	375	380

&lt;210&gt; 5488

&lt;211&gt; 412

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5488

His Ile Cys Ile Ile Glu Cys Tyr Ile His Ala Asn Asp Phe His Ile		
1	5	10
Thr Phe Tyr Lys Phe Ala Leu Asn Met Lys Thr Gln Phe Phe Thr Leu		
20	25	30
Phe Phe Thr Ile Ile Cys Leu Ser Leu Gln Ala Gln Gln Pro Cys Ile		
35	40	45
Ile Glu Gly Asn Ile Asn Gly Ile Pro Asp Gly Thr Val Ile Ser Met		
50	55	60
Met Arg Gln Gln Gly Thr Gly Met Lys Arg Ile Ala Asn Asp Thr Ile		
65	70	75
Asp Asn Gly Lys Phe Lys Phe Ile Ile His Thr Leu Asn Asn Gln Thr		
85	90	95
Glu Ala Leu Arg Ile Val Ser Lys Gly Glu Gly Phe Pro Asn Thr Trp		
100	105	110
Leu Asp Val Tyr Ala Ser Pro Gly Glu Thr Val Ser Ile Ile Gly Ser		
115	120	125
Asp Lys Leu Leu Arg Thr Trp Asn Ile Val Ser Asn Ile Lys Glu Gln		
130	135	140
Gln Glu Glu Asn Gln Tyr Thr Asn Glu Gly Phe Arg Asn Leu Thr Asp		
145	150	155
Gln Arg Gln Arg Leu Gln Ala Leu Ser Ser Asp Met Trp Lys Lys Ile		
165	170	175
Ala Ile Ser Asp Ser Pro Lys Glu Lys Ile Gln Met Thr Asp Ser Ile		
180	185	190
Gln Asn Ile Leu Tyr Pro Gln Leu Asp Ser Leu Glu Leu Leu Ser		
195	200	205
Lys Glu Glu Ile Asn Leu Met Lys Asn Leu Pro Val Thr Ser Ile Trp		
210	215	220
Leu Asp His Leu Glu Ala Leu Ser Arg Gln Ser Val Tyr Leu Lys Gly		
225	230	235
Phe Pro Ile Ser Glu Ala Gln Val Leu Tyr Gln Gln Leu Thr Ser Thr		



				245					250					255			
Gln	Arg	Asn	Ser	Gln	Ile	Gly	Lys	Lys	Ile	Glu	Ala	Cys	Leu	Thr	Pro		
			260						265				270				
Thr	Lys	Ala	Lys	Ile	Gly	Asp	Asp	Met	Pro	Asp	Thr	Glu	Leu	Ser	Asn		
		275						280				285					
Ile	Asp	Gly	Asn	His	His	Arg	Leu	Ser	Asp	Tyr	Lys	Gly	Lys	Tyr	Leu		
	290					295					300						
Leu	Leu	Asp	Phe	Trp	Ser	Arg	Ser	Cys	Gly	His	Cys	Ile	Glu	Ser	Leu		
305					310					315					320		
Pro	Glu	Met	Glu	Ile	Leu	Ser	Asp	Met	Trp	Lys	Glu	Lys	Val	Thr	Phe		
				325					330						335		
Ile	Gly	Ile	Asn	Ile	Asp	Asp	Glu	Lys	Ser	Trp	Lys	Glu	Phe	Ser	Gln		
			340					345					350				
Arg	Lys	Asn	Ile	Lys	Trp	Ile	Asp	Leu	Asn	Asp	Pro	Lys	Gly	Ala	Phe		
		355					360					365					
Gly	Leu	Tyr	Ile	Arg	Tyr	Lys	Ala	Asn	Gly	Thr	Pro	Phe	Tyr	Val	Leu		
	370					375					380						
Val	Thr	Pro	Asp	Gly	Lys	Ile	Thr	Asp	Ile	Trp	Tyr	Gly	Tyr	Asn	Lys		
385					390					395					400		
Asp	Ser	Leu	Ser	Glu	Arg	Leu	Lys	Gln	Gly	Ile	Lys						
			405						410								

&lt;210&gt; 5489

&lt;211&gt; 211

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5489

Ile	Tyr	Cys	Met	Lys	Gln	Leu	Ile	Asp	Leu	Glu	Asn	Trp	Asn	Arg	Lys		
1				5					10					15			
Glu	His	Phe	Lys	Phe	Phe	Ser	Ala	Phe	Asp	Asp	Pro	Phe	Phe	Gly	Ile		
			20					25					30				
Thr	Thr	Leu	Val	Asp	Phe	Thr	Asn	Thr	Tyr	His	Gln	Ser	Lys	Asp	Glu		
		35					40					45					
Lys	Lys	Ser	Phe	Phe	Leu	Tyr	Ser	Val	His	Phe	Leu	Leu	Gln	Cys	Val		
		50				55					60						
Asn	Glu	Val	Glu	Ala	Phe	Lys	Leu	Arg	Ile	Glu	Gly	Glu	Gln	Val	Val		
65					70					75					80		
Lys	Tyr	Asp	Phe	Ile	His	Leu	Ser	Pro	Thr	Ile	Gly	Arg	Glu	Asp	Gly		
				85					90					95			
Thr	Phe	Gly	Phe	Gly	Phe	Phe	Glu	Tyr	Asp	Ala	Asp	Leu	Glu	Val	Phe		
			100					105						110			
Ile	Gln	Asn	Ala	Glu	Lys	Glu	Ile	Glu	Arg	Val	Lys	Asn	Ser	Thr	Gly		
		115					120					125					
Leu	Ser	Phe	Ser	Glu	Asn	Ile	Gly	Arg	Leu	Asp	Leu	Ile	Arg	Tyr	Ser		
	130					135					140						
Ala	Leu	Pro	Trp	Phe	Ala	Phe	Ser	Glu	Met	Lys	His	Ala	Val	Ser	Phe		
145					150					155					160		
Gly	Arg	Gly	Asp	Ser	Val	Pro	Arg	Ile	Ser	Thr	Gly	Lys	Leu	Ile	Lys		
				165					170					175			
Glu	Asn	Gly	Val	Tyr	Leu	Leu	Pro	Ile	Ser	Ile	Ser	Gly	His	His	Ala		
		180						185					190				
Leu	Met	Asp	Gly	Arg	Asn	Val	Ala	Glu	Leu	Ile	Glu	Lys	Leu	Glu	Thr		
		195					200						205				
Thr	Lys	Lys															
		210															

&lt;210&gt; 5490

&lt;211&gt; 143

<212> PRT  
 <213> B.fragilis

<400> 5490

Thr	Val	Leu	Ile	Leu	Ile	Ile	Leu	Glu	Tyr	Ile	Tyr	Ile	Leu	Met	Leu
1			5						10					15	
Trp	Ser	Val	Leu	Cys	Gln	Arg	Gly	Arg	Ser	Leu	Asn	Pro	Tyr	Tyr	Thr
		20						25					30		
Gly	Ile	His	Leu	His	Lys	Asp	Glu	Asn	Gly	Tyr	Tyr	Ile	Lys	Ser	Val
		35					40					45			
Thr	Arg	Leu	Asn	Pro	Tyr	Tyr	Thr	Gly	Ile	His	Leu	His	Leu	Asn	Arg
	50					55					60				
Ala	Ala	Lys	Lys	Leu	Asn	Cys	Phe	Cys	Leu	Asn	Pro	Tyr	Tyr	Thr	Gly
65					70				75						80
Ile	His	Leu	His	Glu	Lys	Glu	Lys	Asp	Glu	Val	Gly	Glu	Met	Thr	Ser
				85				90					95		
Leu	Asn	Pro	Tyr	Tyr	Thr	Gly	Ile	His	Leu	His	Cys	Leu	Cys	Ser	Ile
		100					105					110			
Arg	Glu	Glu	Gly	Tyr	Arg	Arg	Leu	Asn	Pro	Tyr	Tyr	Thr	Gly	Ile	His
	115						120					125			
Leu	His	Ile	Thr	Cys	Leu	Gly	Ser	Tyr	Leu	Ser	Cys	Ile	Val	Ser	
	130					135					140				

<210> 5491  
 <211> 94  
 <212> PRT  
 <213> B.fragilis

<400> 5491

Gln	Val	Leu	Ile	Leu	Ile	Ile	Leu	Glu	Tyr	Ile	Tyr	Ile	Val	Cys	Val
1			5						10					15	
Pro	Ser	Val	Lys	Lys	Ala	Ile	Gly	Val	Leu	Ile	Leu	Ile	Ile	Leu	Glu
		20						25					30		
Tyr	Ile	Tyr	Ile	Leu	Leu	Val	Trp	Ala	Val	Ile	Cys	Leu	Val	Ser	Cys
		35					40					45			
Leu	Asn	Pro	Tyr	Tyr	Thr	Gly	Ile	His	Leu	His	Val	Thr	Ile	Asn	Asn
	50					55					60				
Gln	Asp	Met	Gly	Leu	Gly	Val	Leu	Ile	Leu	Ile	Ile	Leu	Glu	Tyr	Ile
65					70				75						80
Tyr	Met	Asn	Ser	Asp	Ile	Leu	Tyr	Arg	Thr	Pro	His	Val	Ser		
				85					90						

<210> 5492  
 <211> 139  
 <212> PRT  
 <213> B.fragilis

<400> 5492

Lys	Leu	Glu	Met	Lys	Ile	Ser	Lys	Lys	Gln	Ile	Glu	Tyr	Ala	Ile	Glu
1			5						10					15	
Ala	Leu	Arg	Ala	Asn	Asn	Ile	Ile	Thr	Asn	Asp	Asn	Gln	Tyr	Pro	Lys
		20						25					30		
Val	Phe	Lys	Gly	Tyr	Ile	Ser	Ser	Phe	Gly	Ala	Ala	Val	Ile	Gln	Ser
		35					40					45			
Gly	Leu	Ile	Pro	Ala	Ile	Ile	Phe	Phe	Glu	Asn	Glu	Asp	Asn	Asp	Ala
	50					55					60				
Asn	Ala	Asp	Arg	His	Lys	Ile	Ile	Gly	Val	Leu	Lys	Asp	Ile	Ile	Asn
65					70				75						80
Ala	Met	Arg	Gln	Gln	Tyr	Thr	Val	Thr	Asp	Ala	Thr	Ile	Leu	Val	Ser

	85		90		95
Ser Gln Ile	Pro Ala Asn Tyr	Ser Met Ala Gln Tyr	Ile Ile Glu His		
	100	105	110		
Gly Asn Thr	Asp Gln Leu Leu	Lys Glu Ile Thr	Glu Ala Ala Val Ala		
	115	120	125		
Met Lys Leu	Ala Leu Arg Met	Tyr Lys Ser Glu			
	130	135			

<210> 5493  
 <211> 749  
 <212> PRT  
 <213> B.fragilis

<400> 5493

Asn Glu Glu	Ile Asn Ile	Ser Met Ile	Leu His Tyr	Leu Lys Ile	Val
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Phe Arg Gln	Met Ala Lys	Arg Lys Val	Gln Thr Ala	Ile Ser Ile	Leu
	20	25	30		
Gly Ile Thr	Ala Gly Leu	Leu Cys Phe	Ser Val Cys	Asn Tyr Tyr	Asn
	35	40	45		
Arg Ile Phe	Ser Thr Gly	Asn Lys Asp	Leu Ala Thr	Tyr Glu Asn	Gln
	50	55	60		
Ala Glu Ile	Cys Ile Lys	Glu Arg Ser	Tyr Gln Val	Asn Ile Pro	Ile
65	70	75	80		
Glu Asp Phe	Glu Lys Lys	Ile Gly Lys	Asp Lys Phe	Glu Ala Val	Ala
	85	90	95		
Phe Tyr Val	Asn Ser Ser	Ser Thr Ile	Thr Leu Asp	Glu Thr Ile	Tyr
	100	105	110		
Cys Lys Val	Asp Lys Thr	Glu Cys Asn	Ala Asp Tyr	Phe Lys Val	Phe
	115	120	125		
Pro Thr Glu	Cys Ile Asp	Gly Ser Leu	Lys Gln Phe	Gly Ile Ser	Gly
	130	135	140		
Asn Glu Ala	Val Val Thr	Thr Glu Phe	Val Lys Gln	Phe Cys Gly	Gly
145	150	155	160		
Val Pro Pro	Leu Gly Lys	Thr Ile Leu	Asn Gln Arg	Gly Lys Ile	His
	165	170	175		
Thr Ile Ile	Ala Val Ile	Lys Pro Tyr	Pro Ala Gly	Met Asn Asn	Tyr
	180	185	190		
His Ser Ser	Tyr Asp Val	Phe Leu Pro	Leu Pro Glu	Asn Ala Ser	Phe
	195	200	205		
Gly Ile His	Lys Leu Leu	Leu Lys Arg	Pro Glu Asp	Ala Glu His	Ile
	210	215	220		
Ser Gln Leu	Leu Pro Lys	Leu Gly Leu	Phe Pro Asn	His Pro Glu	Trp
225	230	235	240		
Ile Pro Gln	Ile Val Leu	Asp Ser Gln	Thr Glu His	Lys Ala Gly	Ala
	245	250	255		
Glu Leu Trp	Val Ala Ile	Leu Gly Leu	Leu Val Leu	Leu Val Gly	Met
	260	265	270		
Ile Asn Tyr	Phe Ser Phe	Ser Ile Gly	Ala Phe Ala	Asn Arg Tyr	Lys
	275	280	285		
Glu Ile Ser	Leu Arg Asn	Thr Leu Gly	Ser Thr Tyr	Trp Gly Leu	Phe
	290	295	300		
Ile Leu Leu	Phe Leu Glu	Gln Ala Val	Ile Ile Leu	Ile Cys Gly	Ile
305	310	315	320		
Ile Thr Leu	Ala Ile Thr	Glu Ser Leu	Leu Pro Trp	Phe Ile Ser	Thr
	325	330	335		
Phe Ser Asn	Glu Ile Gln	Arg Asn Leu	Tyr Ile Asp	Ile His Arg	Leu
	340	345	350		
Trp Val Tyr	Glu Cys Gln	Tyr Ile Gly	Gly Leu Leu	Ile Ser Leu	

355 360 365  
 Leu Ile Ser Phe Ile Ser Ser Trp His Ile Ala His Lys Thr Ile Ala  
 370 375 380  
 Gln Gly Leu Arg Gly Gly Thr Thr Thr Gly Gln Arg His Ile Ile Arg  
 385 390 395 400  
 Asn Thr Leu Leu Ser Val Gln Leu Leu Phe Ser Phe Leu Phe Ile Val  
 405 410 415  
 Gly Thr Val Gly Ile Arg Met Gln Met Lys Glu Tyr Asp Leu Ser Ala  
 420 425 430  
 Asn Pro Asn Leu Ser Thr Glu Val Lys Lys Glu Ile Met Val Val Asn  
 435 440 445  
 Ile Gly Arg Tyr Asp Arg Ile Arg Glu His Gln Pro Glu Leu Ile Asn  
 450 455 460  
 Phe Leu Arg Ser Arg Arg Trp Asn Ala Glu Thr Ala Tyr Thr Asn Arg  
 465 470 475 480  
 Asp Tyr Ser Gln Glu Tyr Gly Phe Thr Glu Leu Cys Phe Val Ser Asp  
 485 490 495  
 Asp Tyr Phe Asn Leu Met Asn Ile Lys Cys His His Lys Pro Gly Glu  
 500 505 510  
 Pro Phe Cys Tyr Val Asn Glu Gln Leu Tyr Gln Thr Leu Gln Ala Asp  
 515 520 525  
 Ser Thr Ser Glu Ser Phe Arg Phe Gln Asn Gln Val Tyr Pro Val Lys  
 530 535 540  
 Gly Leu Val His Ile Gly Pro Asp Ser Pro Ser Ala Lys Gln Leu Ala  
 545 550 555 560  
 Leu Leu Pro Leu Ser Ala Met Asn Asp Glu Ile Gly Lys Ile Tyr Ile  
 565 570 575  
 Arg Leu Val Pro Asp Ala Pro Arg Lys Glu Val Lys Ala Glu Met Ser  
 580 585 590  
 Lys Glu Met Asn Gln Tyr Leu Pro Gln Asn Glu Pro Phe Glu Phe Ile  
 595 600 605  
 Ser Leu Tyr Glu Glu Gln Thr Gly Leu Gly Thr Ile Ser Val Met Trp  
 610 615 620  
 Leu Phe Val Val Cys Ser Ser Ile Cys Leu Val Ile Thr Val Leu Gly  
 625 630 635 640  
 Val Tyr Gly Ala Ile Ser Ile Asp Thr Ile Arg Lys Gln Lys Glu Val  
 645 650 655  
 Ala Ile Arg Lys Ile Asn Gly Ala Arg Leu Pro Asp Ile Tyr Trp Leu  
 660 665 670  
 Phe Ala Lys Asn Tyr Leu Ile Leu Phe Leu Ile Ala Ser Val Val Gly  
 675 680 685  
 Gly Leu Ile Ser Leu Phe Val Met Val Ile Gly Ser Gln His Arg Val  
 690 695 700  
 Ile Leu Phe Asp Tyr Ala Asp Pro Trp Leu Trp Met Gly Pro Leu Met  
 705 710 715 720  
 Leu Leu Ile Gly Ile Ile Thr Ala Thr Ile Ser Trp Gln Ile Tyr Tyr  
 725 730 735  
 Ile Ala Arg Thr Asn Pro Ala Glu Val Ile Lys Asn Glu  
 740 745

&lt;210&gt; 5494

&lt;211&gt; 141

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5494

Cys Cys Gly Ile Lys Asp Lys Tyr Leu Arg Ser Glu Ser Ala Leu Met  
 1 5 10 15  
 Thr Leu Leu Gly Ile Val Ser Ile Val Cys Val Ile Ile Ser Ile Phe

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 305 310 315 320  
 Leu Pro Thr Glu Val Arg Leu Arg Ala Ser Leu  
 325 330

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 20 25 30  
 Lys Glu Gly Glu Phe Val Ala Ile Met Gly Pro Ser Gly Cys Gly Lys  
 35 40 45  
 Ser Thr Leu Leu Asn Ile Leu Gly Leu Leu Asp Asn Pro Thr Gly Gly  
 50 55 60  
 Glu Tyr Tyr Leu Asn Gly Lys Glu Val Ser Lys Tyr Thr Glu Ser Gln  
 65 70 75 80  
 Arg Thr Asn Leu Arg Lys Gly Val Ile Gly Phe Val Phe Gln Ser Phe  
 85 90 95  
 Asn Leu Ile Asp Glu Leu Asn Val Tyr Glu Asn Ile Glu Leu Pro Leu  
 100 105 110  
 Leu Tyr Met Gly Ile Pro Ala Ser Glu Arg Lys Gln Arg Val Glu Lys  
 115 120 125  
 Ala Met Glu Arg Met Ala Ile Thr His Arg Ser Lys His Phe Pro Gln  
 130 135 140  
 Gln Leu Ser Gly Gly Gln Gln Gln Arg Val Ala Ile Ala Arg Ala Val  
 145 150 155 160  
 Val Ala Asn Pro Lys Leu Ile Leu Ala Asp Glu Pro Thr Gly Asn Leu  
 165 170 175  
 Asp Ser Lys Asn Gly Lys Glu Val Met Gly Leu Leu Ser Glu Leu Asn  
 180 185 190  
 Lys Glu Gly Thr Thr Ile Val Met Val Thr His Ser Gln His Asp Ala  
 195 200 205  
 Gly Phe Ala Asp Arg Val Ile Asn Leu Phe Asp Gly Gln Val Val Thr  
 210 215 220  
 Glu Val Thr Ile  
 225

<210> 5497  
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 Asp Ile Leu Phe Ser Glu Phe Cys Met Arg Leu Asn Lys Gly Glu Thr  
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 Ala Cys Ile Ala Gly Gln Ser Gly Arg Gly Lys Thr Ser Leu Leu Asn  
 35 40 45  
 Ala Ile Met Gly Phe Val Pro Leu Arg Lys Gly Lys Ile Lys Val Gly  
 50 55 60  
 Gly Ile Leu Leu Glu Pro Thr Thr Ile Asp Ala Ile Arg Arg His Ile  
 65 70 75 80

Ala Trp Ile Pro Gln Glu Leu Ala Leu Pro Ser Glu Trp Val Lys Glu  
85 90 95  
Met Ile Ser Leu Pro Phe Ala Leu Lys Ala Asn Arg His Ile Ser Phe  
100 105 110  
Ser Lys Glu Lys Leu Phe Thr Cys Phe Asp Glu Leu Gly Leu Asp Lys  
115 120 125  
Glu Leu Tyr Gln Lys Arg Val Gly Glu Ile Ser Gly Gly Gln Arg Gln  
130 135 140  
Arg Ile Met Ile Ala Val Ala Ala Met Leu Glu Lys Pro Leu Ile Ile  
145 150 155 160  
Val Asp Glu Pro Thr Ser Ala Leu Asp Ala Gly Ser Thr Asp Lys Val  
165 170 175  
Leu Ala Phe Phe Arg Asn Gln Ala Glu Lys Gly Thr Ala Ile Leu Ala  
180 185 190  
Val Ser His Asp Arg Thr Phe Ala Tyr Gly Cys Asn Gln Leu Ile Thr  
195 200 205  
Leu

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<212> PRT  
<213> B.fragilis

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Glu Asn Met Ala Ser Gly Ala Phe Ala Glu Ser Ile Gly Ile Gln Gln  
35 40 45  
Ser Thr Leu Ser His Ile Leu Asn Gly Arg Asn Asn Pro Ser Leu Asp  
50 55 60  
Val Ile Met Lys Val His Gln Lys Tyr Asn Tyr Val Lys Leu Glu Trp  
65 70 75 80  
Leu Leu Tyr Gly Gln Gly Asn Ile Ser Glu Glu Ser Ile Gln Ser Ala  
85 90 95  
Ser Asp Phe Gln Pro Ser Leu Phe Ala Glu Asn Ala Ile Ile Pro Pro  
100 105 110  
Asn Gly Thr Val Thr Pro Glu Asn Arg Arg Glu Met Pro Leu Glu Ser  
115 120 125  
Ser Gln Asn Thr Pro Lys Glu Ile Val Lys Gln Glu Ile Arg Tyr Ile  
130 135 140  
Glu Lys Pro Ser Arg Lys Ile Thr Glu Ile Arg Ile Phe Phe Asp Asp  
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Asn Thr Tyr Glu Thr Phe Arg Gly Glu Lys  
165 170

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Ile Asp Ser Ile Ile Phe Gly Leu Phe Cys Ile Ser Phe Glu Leu Ser  
20 25 30  
Tyr His Ile Gln Cys Leu Tyr Val Cys Leu Phe Gln Tyr Asn Pro Glu

35                      40                      45  
 Asp Leu Asp Tyr Ile Gly Asn Leu His Gln Thr Thr Leu Ile  
 50                      55                      60

<210> 5500

<211> 686

<212> PRT

<213> B.fragilis

<400> 5500

Lys Ile Tyr Val Ile Met Gln Lys Gly Asn Ile Gly Val Thr Thr Glu  
 1                      5                      10                      15  
 Asn Ile Phe Pro Ile Ile Lys Lys Phe Leu Tyr Ser Asp His Glu Ile  
                     20                      25                      30  
 Phe Leu Arg Glu Leu Val Ser Asn Ala Val Asp Ala Thr Gln Lys Leu  
                     35                      40                      45  
 Asn Thr Leu Ala Ser Ile Ser Glu Phe Lys Gly Glu Leu Gly Asp Leu  
 50                      55                      60  
 Thr Val His Val Ser Leu Gly Lys Asp Thr Ile Thr Ile Ser Asp Arg  
 65                      70                      75                      80  
 Gly Ile Gly Leu Thr Ala Glu Glu Ile Asp Lys Tyr Ile Asn Gln Ile  
                     85                      90                      95  
 Ala Phe Ser Gly Ala Asn Asp Phe Leu Glu Lys Tyr Lys Asn Asp Ala  
                     100                      105                      110  
 Asn Ala Ile Ile Gly His Phe Gly Leu Gly Phe Tyr Ser Ala Phe Met  
                     115                      120                      125  
 Val Ser Lys Lys Val Glu Ile Ile Thr Lys Ser Tyr Lys Glu Gly Ala  
                     130                      135                      140  
 Gln Ala Val Lys Trp Thr Cys Asp Gly Ser Pro Glu Phe Thr Leu Glu  
 145                      150                      155                      160  
 Glu Val Glu Lys Ala Asp Arg Gly Thr Asp Ile Val Leu Tyr Ile Asp  
                     165                      170                      175  
 Asp Asp Cys Lys Glu Phe Leu Glu Glu Ser Arg Ile Ser Ala Leu Leu  
                     180                      185                      190  
 Lys Lys Tyr Cys Ser Phe Leu Pro Val Pro Ile Ala Phe Gly Lys Lys  
                     195                      200                      205  
 Lys Glu Trp Lys Asp Gly Lys Gln Val Glu Thr Ala Glu Asp Asn Val  
 210                      215                      220  
 Ile Asn Asp Thr Ile Pro Leu Trp Thr Lys Lys Pro Ser Glu Leu Ser  
 225                      230                      235                      240  
 Asp Glu Asp Tyr Lys Lys Phe Tyr Arg Glu Leu Tyr Pro Met Ser Asp  
                     245                      250                      255  
 Glu Pro Leu Phe Trp Ile His Leu Asn Val Asp Tyr Pro Phe His Leu  
                     260                      265                      270  
 Thr Gly Ile Leu Tyr Phe Pro Lys Val Lys Ser Asn Ile Asp Leu Asn  
                     275                      280                      285  
 Lys Asn Lys Ile Gln Leu Tyr Cys Asn Gln Val Tyr Val Thr Asp Ser  
 290                      295                      300  
 Val Glu Gly Ile Val Pro Asp Phe Leu Thr Leu Leu His Gly Val Leu  
 305                      310                      315                      320  
 Asp Ser Pro Asp Ile Pro Leu Asn Val Ser Arg Ser Tyr Leu Gln Ser  
                     325                      330                      335  
 Asp Ser Asn Val Lys Lys Ile Ser Thr Tyr Ile Ser Lys Lys Val Ser  
                     340                      345                      350  
 Asp Arg Leu Gln Ser Ile Phe Lys Asn Asp Arg Ala Gln Phe Glu Glu  
                     355                      360                      365  
 Lys Trp Asn Asp Leu Lys Ile Phe Ile Asn Tyr Gly Met Leu Thr Gln  
 370                      375                      380  
 Glu Asp Phe Tyr Asp Lys Ala Gln Lys Phe Ala Leu Phe Thr Asp Thr

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385		390		395		400
Asp Gly Lys His Tyr Thr Phe Glu Glu Tyr Gln Thr Leu Ile Lys Asp						
	405			410		415
Asn Gln Thr Asp Lys Asp Lys Asn Leu Ile Tyr Leu Tyr Ala Asn Asn						
	420			425		430
Lys Asp Glu Gln Phe Ala Tyr Ile Glu Ala Ala Lys Asn Lys Gly Tyr						
	435			440		445
Asn Val Leu Leu Met Asp Gly Gln Leu Asp Val Ala Met Val Ser Met						
	450			455		460
Leu Glu Gln Lys Leu Glu Lys Ser Arg Phe Thr Arg Val Asp Ser Asp						
465		470		475		480
Val Val Asp Asn Leu Ile Val Lys Glu Asp Lys Lys Ser Asp Val Leu						
	485			490		495
Glu Ala Ser Lys Gln Glu Ala Leu Ser Ala Ala Phe Lys Ser Gln Leu						
	500			505		510
Pro Lys Met Glu Lys Val Glu Phe Asn Val Met Thr Gln Ala Leu Gly						
	515			520		525
Glu Asn Gly Ser Pro Val Met Ile Thr Gln Ser Glu Tyr Met Arg Arg						
	530			535		540
Met Lys Glu Met Ala Asn Ile Gln Ala Gly Met Ser Phe Tyr Gly Glu						
545		550		555		560
Met Pro Asp Met Phe Asn Leu Val Leu Asn Ser Asp His Lys Leu Val						
	565			570		575
Lys Glu Val Leu Ala Asp Glu Glu Lys Glu Cys Ser Ala Ala Ile Ala						
	580			585		590
Pro Ile Gln Thr Glu Leu Glu Asp Val Thr Lys Arg Arg Asp Ala Leu						
	595			600		605
Lys Lys Lys Gln Glu Gly Lys Lys Asp Glu Asp Ile Pro Thr Ala Glu						
	610			615		620
Lys Asp Glu Leu Asn Asp Leu Asp Lys Lys Trp Asp Glu Leu Lys Gln						
625		630		635		640
Gln Lys Asp Ser Ile Phe Ala Gly Tyr Ala Gly Lys Asn Lys Val Val						
	645			650		655
Arg Gln Leu Ile Asp Leu Ala Leu Leu Gln Asn Asn Met Leu Lys Gly						
	660			665		670
Glu Ala Leu Asn Asn Phe Val Lys Arg Ser Ile Glu Leu Ile						
	675			680		685

<210> 5501  
 <211> 133  
 <212> PRT  
 <213> B.fragilis

<400> 5501  
 Asn His Ser Val Lys Lys Glu Trp Glu Leu Ser Arg Ile Ser Asn Ile  
 1 5 10 15  
 Thr Asn Gln Lys Ser Met Lys Lys Tyr Ile Leu Ser Ser Leu Thr Ile  
 20 25 30  
 Thr Phe Leu Leu Leu Ser Ile Thr Ala Cys Ser Gln Gly Lys Gln Ile  
 35 40 45  
 Ser Gly Ser Ser Asn Tyr Ile Thr Lys Asn Ile Lys Val Gly Ser Phe  
 50 55 60  
 Asp Gln Ile Lys Ser Met Ser Ser Ser Asp Ile Val Tyr Thr Gln Lys  
 65 70 75 80  
 Gln Gly Ala Pro Thr Val Gln Ile Tyr Gly Pro Asp Asn Ile Val Glu  
 85 90 95  
 Leu Met Glu Thr Ser Val Ser Gly Arg Thr Leu Thr Ile Lys Phe Lys  
 100 105 110  
 Lys Asn Thr Ser Ile Arg Asn Ser Gly Lys Leu Glu Ile Arg Val Ser

115  
Ser Pro Ser Leu Thr  
130

120

125

<210> 5502  
<211> 303  
<212> PRT  
<213> B.fragilis

&lt;400&gt; 5502

Arg Leu Leu Leu Ile Leu Met Ile Gln Thr Arg Leu Lys Gly Met Gly  
1 5 10 15  
Val Ala Leu Ile Thr Pro Phe Lys Glu Asp Glu Ser Val Asp Tyr Asp  
20 25 30  
Ala Leu Met Arg Leu Val Asp Tyr Leu Leu Gln Asn Asn Ala Asp Phe  
35 40 45  
Leu Cys Val Leu Gly Thr Thr Ala Glu Thr Pro Thr Leu Ser Glu Glu  
50 55 60  
Glu Lys Lys Lys Ile Lys Lys Met Val Ile Asp Arg Val Asn Gly Arg  
65 70 75 80  
Ile Pro Ile Leu Leu Gly Val Gly Ser Asn Asn Thr Arg Ala Val Val  
85 90 95  
Glu Thr Leu Lys Asn Asp Asp Phe Thr Gly Val Asp Ala Ile Leu Ser  
100 105 110  
Val Val Pro Tyr Tyr Asn Lys Pro Ser Gln Glu Gly Ile Tyr Gln His  
115 120 125  
Tyr Lys Ala Ile Ala Ser Ala Thr Glu Leu Pro Ile Val Leu Tyr Asn  
130 135 140  
Val Pro Gly Arg Thr Gly Val Asn Met Thr Ala Glu Thr Thr Leu Arg  
145 150 155 160  
Ile Ala Lys Asp Phe Gln Asn Val Ile Ala Ile Lys Glu Ala Ser Gly  
165 170 175  
Asn Ile Thr Gln Met Asp Asp Ile Ile Lys Asn Lys Pro Ala Asn Phe  
180 185 190  
Asp Val Ile Ser Gly Asp Asp Gly Ile Thr Phe Pro Leu Ile Thr Leu  
195 200 205  
Gly Ala Val Gly Val Ile Ser Val Ile Gly Asn Ala Phe Pro Arg Glu  
210 215 220  
Phe Ser Arg Met Thr Arg Leu Ala Leu Gln Gly Asp Phe Ala Asn Ala  
225 230 235 240  
Leu Thr Ile His His Lys Phe Thr Glu Leu Phe Asn Leu Leu Phe Val  
245 250 255  
Asp Gly Asn Pro Ala Gly Val Lys Ser Met Leu Asn Ala Met Gly Met  
260 265 270  
Ile Glu Asn Lys Leu Arg Leu Pro Leu Val Pro Thr Arg Ile Thr Thr  
275 280 285  
Phe Glu Ala Ile Arg Lys Val Leu Asn Glu Leu Asn Ile Lys Cys  
290 295 300

<210> 5503  
<211> 745  
<212> PRT  
<213> B.fragilis

&lt;400&gt; 5503

Lys Asp Ala Phe Leu Gln Pro Arg Gly Glu Tyr Val Leu Leu Ala Ile  
1 5 10 15  
Leu Lys Asp Lys Asp Asn Leu Ala Ala Thr Val Leu Glu Ala Asn His  
20 25 30



500	505	510
Thr Val Ser Arg Leu Val Gly Ala Pro Pro Gly Tyr Val Gly Tyr Glu		
515	520	525
Glu Gly Gly Gln Leu Thr Glu Lys Val Arg Arg Lys Pro Tyr Ser Ile		
530	535	540
Val Leu Leu Asp Glu Ile Glu Lys Ala His Pro Asp Val Phe Asn Leu		
545	550	555
Leu Leu Gln Val Met Asp Glu Gly Arg Leu Thr Asp Ser Tyr Gly Arg		
565	570	575
Met Val Asp Phe Lys Asn Thr Val Ile Met Thr Ser Asn Ile Gly		
580	585	590
Thr Arg Gln Leu Lys Glu Phe Gly Arg Gly Val Gly Phe Ala Thr Gln		
595	600	605
Ser Arg Leu Asp Asp Lys Glu Phe Ser Arg Ser Val Ile Gln Lys Ala		
610	615	620
Leu Asn Lys Ser Phe Ala Pro Glu Phe Ile Asn Arg Val Asp Glu Ile		
625	630	635
Ile Thr Phe Asp Gln Leu Ser Leu Glu Ala Ile Thr Lys Ile Ile Asp		
645	650	655
Ile Glu Leu Lys Gly Leu Tyr Asn Arg Ile Glu Ser Ile Gly Tyr Lys		
660	665	670
Leu Val Ile Glu Asp Lys Ala Lys Gln Phe Val Ala Ser Lys Gly Tyr		
675	680	685
Asp Val Gln Tyr Gly Ala Arg Pro Leu Lys Arg Ala Ile Gln Thr Tyr		
690	695	700
Leu Glu Asp Gly Leu Ser Glu Leu Ile Ile Ser Ala Asp Leu Asn Glu		
705	710	715
Gly Asp Thr Ile Thr Val Ser Leu Asn Glu Glu Lys Gly Glu Leu Glu		
725	730	735
Met Lys Asn Glu Ala Lys Thr Ala Glu		
740	745	

&lt;210&gt; 5504

&lt;211&gt; 238

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5504

Ser Lys Ser Ser Gly Leu Tyr Trp Asn Arg Gln Thr Tyr Lys His Trp	
1 5 10 15	
Ile Trp Tyr Asp Asn Ser Lys Leu Ile Gln Lys Arg Pro Lys Met Ile	
20 25 30	
Glu Ser Ile Thr Ser Ile Gly Ile Phe Ile Asp Gly Gly Tyr Phe Thr	
35 40 45	
Lys Ile Asn Gln Ala Leu Glu Glu Lys Leu Ser Leu Asn Ile Asp Ile	
50 55 60	
Thr Phe Phe Phe Lys Phe Ile Lys Glu Lys Ile Ala Tyr Glu Tyr Asn	
65 70 75 80	
Leu Asn Thr Glu Phe Cys Gln Ile Thr Glu Ser His Tyr Phe Arg Gly	
85 90 95	
Arg Tyr Arg Val Asn Asp Ala Asn Asn Lys His Leu Leu Phe Ser Glu	
100 105 110	
Arg Lys Phe Glu Asp Ser Leu Ile Glu Asn Asp Val Ile Phe His Tyr	
115 120 125	
Lys His Leu Arg Glu Ile Gln Lys Glu Gly Glu Ile Asn Val Ile Glu	
130 135 140	
Lys Gly Ile Asp Val Trp Phe Ala Leu Glu Ala Tyr Glu Leu Ser Leu	
145 150 155 160	
Phe Arg Lys Phe Asp Phe Val Ile Leu Ile Thr Gly Asp Ala Asp His	

				165				170					175				
Glu	Met	Leu	Ile	Lys	Lys	Leu	Lys	Ala	Leu	Lys	Ile	His	Thr	Ile	Leu		
				180				185					190				
Leu	Thr	Trp	Asp	Leu	Ser	Pro	Glu	Ser	Ala	Thr	Ala	Arg	Leu	Leu	Arg		
				195				200				205					
Glu	Glu	Ala	Cys	Lys	His	Ile	Glu	Leu	Ser	Glu	Ile	Ala	Ile	Glu	Asp		
				210				215				220					
Lys	Asp	Leu	Ile	Lys	Lys	Ile	Cys	Arg	Ser	Lys	Gln	Lys	Arg				
				225				230				235					

&lt;210&gt; 5505

&lt;211&gt; 256

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5505

Lys	Ile	Met	Ser	Glu	Asn	Ile	Arg	Val	Ser	Glu	Val	Ser	Asp	Ile	Leu		
1				5				10					15				
Arg	Gln	Gln	Leu	Glu	Gly	Ile	Glu	Thr	Lys	Val	Gln	Leu	Asp	Glu	Ile		
				20				25					30				
Gly	Thr	Val	Leu	Gln	Val	Ser	Asp	Gly	Val	Val	Arg	Ile	Tyr	Gly	Leu		
				35				40				45					
Arg	Asn	Ala	Glu	Ala	Asn	Glu	Leu	Leu	Glu	Phe	Asp	Asn	Gly	Ile	Lys		
				50				55				60					
Ala	Ile	Val	Met	Asn	Leu	Glu	Glu	Asp	Asn	Val	Gly	Ala	Val	Leu	Leu		
				65				70				75			80		
Gly	Pro	Thr	Asp	Lys	Ile	Lys	Glu	Gly	Phe	Thr	Val	Lys	Arg	Thr	Lys		
				85				90				95					
Arg	Ile	Ala	Ser	Ile	Arg	Val	Gly	Glu	Ser	Met	Leu	Gly	Arg	Val	Ile		
				100				105				110					
Asp	Pro	Leu	Gly	Glu	Pro	Leu	Asp	Gly	Lys	Gly	Leu	Ile	Gly	Gly	Glu		
				115				120				125					
Leu	Tyr	Glu	Met	Pro	Leu	Glu	Arg	Lys	Ala	Pro	Gly	Val	Ile	Tyr	Arg		
				130				135				140					
Gln	Pro	Val	Asn	Gln	Pro	Leu	Gln	Thr	Gly	Leu	Lys	Ala	Val	Asp	Ala		
				145				150				155			160		
Met	Ile	Pro	Ile	Gly	Arg	Gly	Gln	Arg	Glu	Leu	Ile	Ile	Gly	Asp	Arg		
				165				170				175					
Gln	Thr	Gly	Lys	Thr	Ser	Ile	Ala	Ile	Asp	Thr	Ile	Ile	Asn	Gln	Arg		
				180				185				190					
Ser	Asn	Tyr	Glu	Ala	Gly	Asp	Pro	Val	Tyr	Trp	Ile	Tyr	Val	Thr	Ile		
				195				200				205					
Gly	Gln	Lys	Gly	Ser	Thr	Val	Ala	Ser	Ile	Val	Asn	Thr	Leu	Arg	Gln		
				210				215				220					
Tyr	Gly	Ala	Met	Asp	Tyr	Thr	Ile	Val	Val	Ala	Ala	Thr	Ala	Gly	Asp		
				225				230				235			240		
Pro	Ala	Ala	Leu	Gln	Tyr	Phe	Ala	Pro	Phe	Gly	Gly	Gly	Cys	His	Arg		
				245				250				255					

&lt;210&gt; 5506

&lt;211&gt; 265

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5506

Lys	Gly	Ala	Leu	Ser	Met	Glu	Leu	Arg	Thr	Val	Asn	Val	Thr	Arg	Tyr		
1				5				10					15				
Ile	Met	Pro	Leu	Arg	Glu	Gly	Gly	Ser	Leu	Pro	Ala	Leu	Ala	Glu	Ala		
				20				25				30					

Asp Asp Ser Phe Lys Tyr Val Val Lys Phe Arg Gly Ala Gly His Gly  
 35 40 45  
 Thr Lys Ala Leu Ile Ala Glu Leu Ile Gly Gly Glu Val Ala Arg Val  
 50 55 60  
 Leu Gly Phe Arg Val Pro Glu Leu Val Phe Leu Asn Leu Asp Glu Ala  
 65 70 75 80  
 Phe Gly Arg Ser Glu Gly Asp Glu Glu Ile Gln Asp Leu Leu Gln Gly  
 85 90 95  
 Ser Arg Gly Leu Asn Met Gly Leu His Phe Leu Ser Gly Ala Leu Pro  
 100 105 110  
 Phe Asp Pro Val Val Thr Glu Val Asp Glu Lys Leu Ala Ser Gln Val  
 115 120 125  
 Val Trp Leu Asp Ala Leu Leu Thr Asn Val Asp Arg Thr Val Lys Asn  
 130 135 140  
 Thr Asn Met Leu Met Trp His Lys Glu Leu Trp Leu Ile Asp His Gly  
 145 150 155 160  
 Ala Ser Leu Phe Phe His His Ser Trp Val Asn Trp His Lys His Ala  
 165 170 175  
 Leu Ser Ser Phe Thr Gln Val Lys Asp His Ala Leu Leu Pro Leu Ala  
 180 185 190  
 Gly Lys Leu Asp Glu Val Asp Ala Glu Phe Arg Lys Leu Leu Thr Ser  
 195 200 205  
 Glu Lys Ile Arg Glu Ile Val Asp Leu Ile Pro Asp Ser Trp Ile Glu  
 210 215 220  
 Trp Arg Asp Lys Asp Glu Thr Pro Gln Asp Ile Arg Asp Ile Tyr Tyr  
 225 230 235 240  
 Arg Phe Leu Lys Glu Arg Ile Glu His Ser Glu Ile Phe Val Lys Glu  
 245 250 255  
 Ala Gln His Ala Arg Lys Ala Tyr Leu  
 260 265

&lt;210&gt; 5507

&lt;211&gt; 146

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5507

Ser Val Phe Thr Met Asn Met Ser Ile Thr Lys Arg Asn Phe Leu Gly  
 1 5 10 15  
 Tyr Leu Ser Ile Leu Thr Leu Val Gly Gly Gly Leu Gly Ala Leu Val  
 20 25 30  
 Leu His Tyr Leu Glu Pro Gly His Tyr Phe Gly Gly Tyr Pro Leu Ile  
 35 40 45  
 Pro Val Tyr Phe Tyr Ile Phe Gly Val Phe Tyr Ile Tyr Met Phe Asp  
 50 55 60  
 Ala Cys Arg Arg His Ala Pro Glu Lys Met Val Met Leu Phe Leu Val  
 65 70 75 80  
 Ala Lys Val Leu Lys Met Ile Val Ser Val Phe Leu Leu Ile Ile Tyr  
 85 90 95  
 Cys Val Ala Val Pro Asp Ser Ala Ile Glu Phe Leu Leu Thr Phe Leu  
 100 105 110  
 Ala Phe Tyr Leu Gly Tyr Leu Ile Tyr Glu Ser Trp Phe Phe Phe Val  
 115 120 125  
 Phe Glu Trp Asn Gln Lys Leu Thr Lys Lys Ser Lys Lys Tyr Glu Thr  
 130 135 140  
 Val Ala  
 145

&lt;210&gt; 5508

<211> 461  
 <212> PRT  
 <213> B.fragilis

<400> 5508

Lys	Tyr	Val	Thr	Leu	His	Tyr	Met	Ala	Gln	Gln	Thr	Asp	Pro	Arg	Ile
1				5					10					15	
Leu	Gly	Thr	Glu	Pro	Ile	Gly	Lys	Leu	Leu	Gln	Tyr	Ser	Ile	Pro	
			20					25					30		
Ala	Ile	Ile	Gly	Met	Thr	Ile	Thr	Ser	Leu	Tyr	Asn	Ile	Ile	Asp	Ser
			35					40				45			
Ile	Phe	Ile	Gly	His	Gly	Val	Gly	Pro	Met	Ala	Ile	Ser	Gly	Leu	Ala
	50					55					60				
Ile	Thr	Phe	Pro	Leu	Met	Asn	Leu	Val	Val	Ala	Phe	Cys	Val	Leu	Ile
65					70					75					80
Ser	Ala	Gly	Gly	Ala	Thr	Ile	Ser	Ser	Ile	Arg	Leu	Gly	Gln	Lys	Asp
				85					90					95	
Ile	Lys	Gly	Ala	Thr	Asp	Val	Leu	Gly	Asn	Thr	Leu	Met	Leu	Cys	Leu
			100					105					110		
Thr	Asn	Ala	Val	Leu	Phe	Gly	Gly	Leu	Ala	Tyr	Leu	Phe	Leu	Asp	Pro
		115					120					125			
Ile	Leu	Phe	Phe	Phe	Gly	Ala	Ser	Thr	Gly	Thr	Leu	Pro	Tyr	Ala	Arg
	130					135					140				
Asp	Phe	Met	Gln	Val	Ile	Leu	Leu	Gly	Thr	Pro	Ile	Thr	Tyr	Thr	Met
145					150					155					160
Ile	Gly	Leu	Asn	Asn	Val	Met	Arg	Ala	Thr	Gly	Tyr	Pro	Lys	Lys	Ala
				165					170					175	
Met	Leu	Thr	Ser	Leu	Val	Thr	Val	Ile	Ala	Asn	Val	Ile	Ile	Ala	Pro
			180					185					190		
Val	Phe	Ile	Phe	His	Phe	Gly	Trp	Gly	Ile	Arg	Gly	Ala	Ala	Met	Ala
	195					200						205			
Thr	Val	Leu	Ser	Gln	Phe	Ile	Gly	Met	Ile	Trp	Val	Val	Asn	His	Phe
	210					215					220				
Arg	Asn	Lys	Glu	Ser	Phe	Val	His	Phe	Met	Pro	Gly	Phe	Trp	Lys	Met
225					230					235					240
Lys	Lys	Arg	Ile	Ile	Gly	Ser	Ile	Phe	Ser	Ile	Gly	Met	Ser	Pro	Phe
				245					250					255	
Ala	Met	Asn	Val	Thr	Ala	Cys	Ile	Ile	Val	Ile	Leu	Ile	Asn	Asn	Ser
			260					265					270		
Leu	Gln	Lys	Tyr	Gly	Gly	Asp	Met	Ala	Ile	Gly	Ala	Tyr	Gly	Ile	Ile
		275					280					285			
Asn	Arg	Leu	Leu	Met	Leu	Tyr	Val	Met	Val	Val	Met	Gly	Leu	Thr	Met
	290					295					300				
Gly	Met	Gln	Pro	Ile	Val	Gly	Tyr	Asn	Tyr	Gly	Ala	Gln	Lys	Ile	Asp
305					310					315					320
Arg	Val	Lys	His	Thr	Leu	Arg	Leu	Gly	Ile	Ile	Val	Gly	Val	Leu	Ile
				325					330					335	
Thr	Ser	Ser	Gly	Phe	Ile	Ile	Cys	Glu	Leu	Phe	Pro	His	Thr	Val	Ser
			340					345					350		
Ala	Ile	Phe	Thr	Asp	Ser	Asp	Glu	Leu	Ile	Asp	Met	Ala	Ser	Ser	Gly
		355					360					365			
Leu	Arg	Ile	Cys	Thr	Leu	Met	Phe	Pro	Phe	Val	Gly	Ala	Gln	Ile	Val
	370					375					380				
Ile	Ser	Asn	Phe	Phe	Gln	Ser	Ile	Gly	Met	Ala	Lys	Ile	Ser	Ile	Phe
385					390					395					400
Leu	Ser	Leu	Ser	Arg	Gln	Leu	Val	Tyr	Leu	Leu	Pro	Gly	Leu	Leu	Leu
				405					410					415	
Leu	Pro	Pro	Leu	Tyr	Gly	Val	Lys	Gly	Val	Trp	Ile	Ser	Met	Pro	Val
			420					425					430		

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Ser Asp Gly Leu Ala Phe Val Thr Ala Val Val Ile Leu Met Val Tyr  
 435 440 445  
 Ile Lys Lys Val Lys Glu Lys Thr Ser Gly Gln Lys Leu  
 450 455 460

<210> 5509  
 <211> 330  
 <212> PRT  
 <213> B.fragilis

<400> 5509  
 Thr Glu Val Thr Met Asn Arg Phe Ile Gly Tyr Ile Gln Val Ala Cys  
 1 5 10 15  
 Cys Cys Leu Leu Leu Cys Ala Cys Cys Val Arg Asp Gly Met Asp Glu  
 20 25 30  
 Asp Cys Asn Cys Tyr Val Arg Phe Val Tyr Asp Tyr Asn Leu Gln Tyr  
 35 40 45  
 Ile Asp Leu Ile His Lys Gln Ala Thr Lys Met Asn Leu Tyr Val Phe  
 50 55 60  
 Asp Glu Lys Gly Val Phe Val Thr Glu Ser Glu Glu Glu Ser Gly Ala  
 65 70 75 80  
 Cys Ala Pro Asp Tyr Leu Met Thr Leu Pro Gly Ala Met Ala Gly Arg  
 85 90 95  
 Arg Tyr Ile Phe Val Ala Trp Ser Gly Leu Tyr Asp Lys Ser Tyr Asp  
 100 105 110  
 Lys Val Thr Leu Thr Pro Gly Val Ser Thr Leu Glu Asp Leu Glu Val  
 115 120 125  
 Ser Val Asn Asn Leu Lys Thr Arg Ile Gly Gly Gly Val Val Asp Arg  
 130 135 140  
 Glu Leu His Leu Leu Trp His Gly Lys Gln Thr Glu Val Ser Pro Gln  
 145 150 155 160  
 Tyr Asn Asn Asp Ile Thr Thr Val Ser Leu Leu Lys Asn Thr Lys Lys  
 165 170 175  
 Phe Arg Ile Ile Met Gln Met Leu Asp Asp Ser Ser Ile His Val Asp  
 180 185 190  
 Asp Tyr Asp Phe Arg Ile Ile Ser Pro Asn Gly Arg Tyr Asn His Glu  
 195 200 205  
 Asn Gly Leu Leu Gly Asp Glu Thr Asp Glu Lys Val Glu Tyr Thr Ala  
 210 215 220  
 Tyr His Thr Glu Asp Asp Pro Glu Thr Gly Ala Ile Ala Lys Leu Asn  
 225 230 235 240  
 Thr Leu Arg Leu Met Thr Asp Thr Glu Asn Arg Leu Val Ile Thr His  
 245 250 255  
 Lys Ser Ser Gly Asn Val Ile Leu Asp Ile Pro Leu Asn Lys Tyr Leu  
 260 265 270  
 Asn Ala Leu Arg Leu Gln Gln Tyr Ala Asp Ile Pro Leu Gln Glu Tyr  
 275 280 285  
 Leu Asp Arg Ala Asp Lys His Gly Ile Ile Leu Phe Phe Lys Gly Met  
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 325 330

<210> 5510  
 <211> 768  
 <212> PRT  
 <213> B.fragilis



&lt;400&gt; 5510

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 Leu Leu Val Ser Ile Ile Leu Phe Ser Arg Val Ala Phe Glu Leu Ser  
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 Tyr Asp Asn Cys Phe Gln Asp Val Asp Asn Leu Tyr Ile Val Lys Thr  
 50 55 60  
 Glu Trp Ile Lys Asp Gly Val Ile Lys Gly Asn Ala Gly Ser Tyr Thr  
 65 70 75 80  
 Leu Ile Pro Ile Ala Ser Thr Val Ala Glu Glu Phe Pro Lys Glu Val  
 85 90 95  
 Glu Ser Ala Val Cys Ser Ser Ile Ser Phe Glu Ala Ile Phe Lys Ile  
 100 105 110  
 Gly Asn Arg Lys Met Asn Lys Ser Phe Ile Leu Ser Asp Ser Leu Tyr  
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 Phe Arg Thr Met Gly Ile Glu Val Ile Ser Gly Asn Pro Asn Asp Leu  
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 Thr Asn Pro Asp Val Leu Phe Leu Ser Gln Ser Val Ala Arg Glu Ala  
 145 150 155 160  
 Phe Gly Glu Glu Asn Pro Ile Gly Lys Thr Leu His Met Met Val Trp  
 165 170 175  
 Gly Thr Pro Val Glu Thr Leu Val Lys Gly Val Phe Ala Asp Leu Pro  
 180 185 190  
 Tyr Asn Val Ser Leu Glu Arg His Glu Ala Val Leu Ser Phe Ala Ser  
 195 200 205  
 His Ser Lys Tyr Gly Trp Gly Arg Pro Gly Trp Thr Ser Gly Gly Asn  
 210 215 220  
 Tyr Asn Ala Phe Ile Arg Leu Lys Asp Gly Glu Arg Ser Ala Asp Val  
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 Ile Asn Thr Asp Ile Asp Lys Val Ile Ala Lys His Ile Pro Ser Asp  
 245 250 255  
 Met Asn Met His Leu His Met Ile Val Val Pro Leu Arg Thr Ile His  
 260 265 270  
 Leu Glu His Ser Asp Val Lys Arg Thr Ile Leu Ile Leu Ser Leu Leu  
 275 280 285  
 Gly Phe Ala Ile Leu Phe Ala Ala Thr Met Asn Tyr Val Leu Ile Phe  
 290 295 300  
 Val Ser Ser Leu Ser Gln Arg Ala Lys Gly Ile Gly Ile His Lys Cys  
 305 310 315 320  
 Asn Gly Ala Ser Asp Lys Ala Ile Phe Ser Met Phe Ile Tyr Glu Thr  
 325 330 335  
 Ala Leu Ile Ile Gly Val Ser Leu Val Leu Met Ile Ile Phe Leu Phe  
 340 345 350  
 Gln Phe Gln Glu Lys Ile Glu Glu Leu Ala Glu Val Ser Leu Ser Ser  
 355 360 365  
 Leu Phe Thr Trp His Asn Leu Trp Ala Pro Leu Ser Val Val Thr Phe  
 370 375 380  
 Leu Phe Val Ile Gly Gly Ile Leu Pro Gly Lys Ile Phe Ser Leu Ile  
 385 390 395 400  
 Pro Val Thr Gln Val Phe His Pro Tyr Ile Lys Glu Asn Arg Gly Trp  
 405 410 415  
 Lys Arg Ile Leu Phe Ile Glu Phe Ala Gly Val Ala Phe Ile Phe  
 420 425 430  
 Gly Leu Met Cys Val Ala Tyr Leu Gln Cys His Tyr Ile Ile Asn Arg  
 435 440 445  
 Asp Met Gly Tyr Gln Pro Lys Gly Val Ala Ser Cys Lys His Asp Phe  
 450 455 460

Ala Glu Pro Asp Asn Ala Arg Asn Asn Leu Lys Ser Leu Pro Tyr Val  
 465 470 475 480  
 Glu Gly Val Ala Ser Ile Arg Gly Ser Met Thr Trp Phe Gly Asn Arg  
 485 490 495  
 Glu Val Thr Asp Glu Gly Gly Lys Val Leu Phe Thr Pro Arg Cys Ala  
 500 505 510  
 Ala Phe Asp Lys Asp Phe Val Pro Leu Leu Gly Leu His Ile Lys Thr  
 515 520 525  
 Gly Arg Asn Phe Thr Gly Glu Arg Gln Phe Leu Val Asn Gln Pro Tyr  
 530 535 540  
 Val Glu Lys Met Gly Trp Lys Gly Ser Gly Val Gly Glu Ile Val Pro  
 545 550 555 560  
 Asn Arg Gly Thr Val Val Gly Val Leu Ala Pro Phe Cys Cys Gly Val  
 565 570 575  
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 580 585 590  
 Arg Asn Val His Val Arg Leu Lys Glu Pro Phe Thr Glu Asn Leu His  
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 610 615 620  
 Phe Arg Ser Leu Glu Gln Asp Leu Glu Arg Tyr Tyr Arg Pro Thr Ile  
 625 630 635 640  
 Ile Phe Arg Asp Ala Thr Phe Leu Ala Phe Ile Thr Ile Leu Phe Ile  
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 Thr Leu Met Gly Leu Ile Gly Tyr Ile Asn Asp Glu Val Arg Arg Arg  
 660 665 670  
 Ser Lys Glu Ile Ala Ile Arg Lys Ile Asn Gly Ala Glu Ala Arg Ser  
 675 680 685  
 Ile Leu Phe Leu Leu Ser Lys Asp Ile Phe Trp Val Ala Ile Leu Ser  
 690 695 700  
 Val Ala Ile Gly Thr Tyr Gly Ala Tyr Tyr Met Ser Leu Leu Trp Ile  
 705 710 715 720  
 Ser Gln Phe Glu Asp Thr Ile Cys Val Tyr Ala Gly Trp Tyr Val Val  
 725 730 735  
 Thr Ala Ile Cys Leu Leu Val Phe Ile Phe Val Phe Ile Ile Gly Arg  
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 755 760 765

<210> 5511

<211> 404

<212> PRT

<213> B.fragilis

<220>

<221> UNSURE

<222> (99)

<223> Identity of amino acid sequences at the above locations are unknown.

<400> 5511

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 Leu Leu Leu Phe Ile Ser Leu Tyr Leu Leu Tyr Pro Val Leu Pro Val  
 35 40 45  
 Met Met Ala Ser Arg Leu Gly Val Pro Val Ser Gln Thr Gly Val Ile  
 50 55 60  
 Phe Ile Phe Phe Thr Leu Ala Met Phe Phe Ile Gly Pro Phe His Ala

65					70					75				80	
Tyr	Leu	Val	Asp	Val	Tyr	Lys	Arg	Lys	Tyr	Ile	Cys	Met	Leu	Ser	Phe
				85					90					95	
Gly	Gly	Xaa	Gly	Cys	Ser	Asn	Gln	Pro	Gly	Tyr	Thr	Leu	Val	Gln	Asn
			100					105						110	
Ala	Thr	His	Leu	Leu	Met	Leu	Cys	Ile	Val	Gln	Gly	Leu	Ser	Phe	Gly
		115					120					125			
Met	Ala	Ala	Thr	Ala	Gly	Ile	Thr	Leu	Ala	Ile	Asp	Ile	Thr	Asn	Ser
	130						135				140				
Thr	Phe	Arg	Ser	Ala	Gly	Asn	Val	Val	Phe	Ser	Trp	Ala	Ala	Arg	Leu
145					150					155					160
Gly	Met	Ile	Ile	Gly	Ala	Ala	Leu	Gly	Val	Tyr	Leu	Phe	Arg	Thr	His
				165					170						175
Gly	Phe	Glu	Thr	Leu	Leu	Tyr	Val	Ala	Val	Ala	Leu	Gly	Ala	Leu	Gly
			180					185					190		
Ile	Leu	Phe	Val	Ser	Arg	Val	Tyr	Val	Pro	Phe	Arg	Ala	Pro	Ile	Gly
		195					200					205			
Met	Lys	Val	Cys	Ser	Met	Asp	Arg	Phe	Leu	Leu	Leu	Arg	Gly	Leu	Ile
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Pro	Ala	Phe	Asn	Leu	Ile	Leu	Ile	Ala	Phe	Ile	Pro	Gly	Leu	Met	Leu
225					230					235					240
Pro	Val	Leu	Ala	Gly	Ala	Pro	Ser	Asp	Val	Pro	Val	Gly	Gly	Glu	Thr
				245					250					255	
Val	Pro	Phe	Phe	Ala	Leu	Val	Gly	Cys	Gly	Phe	Leu	Leu	Ser	Val	Leu
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Ile	Val	Lys	Leu	Phe	Phe	Arg	Tyr	Asp	Asn	Lys	Met	Trp	Leu	Gln	Ile
		275					280						285		
Val	Val	Gly	Leu	Val	Thr	Val	Ile	Gly	Ser	Met	Ala	Met	Leu	Phe	Ser
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Pro	Glu	Thr	Ser	Trp	Asn	Ala	Pro	Ala	Ala	Val	Leu	Met	Gly	Leu	Gly
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Leu	Gly	Leu	Val	Thr	Pro	Glu	Phe	Leu	Met	Met	Phe	Val	Lys	Leu	Ser
				325					330					335	
Gln	His	Cys	Gln	Arg	Gly	Thr	Ala	Asn	Thr	Thr	His	Leu	Leu	Ala	Trp
			340					345						350	
Glu	Leu	Gly	Val	Gly	Leu	Gly	Ile	Ala	Ser	Ala	Cys	His	Leu	His	Leu
		355					360					365			
Thr	Ala	Asn	Glu	Gln	Ala	Val	Tyr	Arg	Val	Gly	Leu	Leu	Ser	Ala	Ile
	370					375					380				
Val	Ser	Leu	Ala	Phe	Phe	Val	Leu	Leu	Thr	Tyr	Pro	Tyr	Phe	Lys	Arg
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Lys	Lys	Val	Arg												

&lt;210&gt; 5512

&lt;211&gt; 466

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5512

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			20					25					30		
Tyr	Glu	Thr	Lys	Asn	Asn	Thr	Val	Arg	Tyr	Ser	Trp	Asp	Leu	Asn	Val
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Ser	Thr	Asp	Gly	Met	Asn	Glu	Phe	Thr	Gly	Gly	Asp	Val	Val	Arg	Gly
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Glu	Asp	Val	Pro	Ser	Ala	Thr	Pro	Thr	Val	Ser	Arg	Phe	Val	Thr	Val

65					70					75					80
Gly	Arg	Glu	Val	Val	Lys	Gln	Asp	Tyr	Glu	Leu	Leu	Ile	Leu	Ile	Asn
				85					90					95	
Pro	Pro	Gly	Glu	Leu	Leu	Glu	Ile	Thr	Glu	Gln	Gly	Asn	Pro	Arg	Ser
		100						105					110		
Tyr	Leu	Ser	Arg	Ala	Ala	Asn	Met	Thr	Lys	Glu	Ser	Leu	Ile	Gln	Pro
		115					120						125		
Tyr	Gly	Ile	Ala	Ala	Asp	Asn	Asn	Phe	Tyr	Met	Thr	Asn	His	Gln	Asp
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Leu	Ile	Phe	Val	Pro	Glu	Val	Glu	Leu	Arg	Asp	Asn	Gln	Arg	Met	Ala
145					150				155						160
Glu	Glu	Asn	Pro	Val	Arg	Val	Glu	Val	Glu	Arg	Ala	Val	Ala	Lys	Val
				165					170						175
Val	Val	Ser	Gly	Val	Pro	Glu	Val	Val	Pro	His	Gly	Asp	Arg	Ile	Asp
			180					185					190		
Asn	Leu	Lys	Trp	Gly	Leu	Asp	Val	Thr	Asn	Met	Tyr	Thr	Tyr	Trp	Met
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Arg	Lys	Met	Thr	Phe	Ile	Ala	Asn	Ser	Gly	Gly	Val	Pro	Asn	Glu	Met
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Glu	Gln	Leu	Asn	Ala	Gly	Tyr	Arg	Glu	Glu	Arg	Tyr	Ala	Glu	Asp	Pro
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Asn	Phe	Thr	Arg	Phe	Ser	Ser	Trp	Asn	Gly	Gly	Asn	Pro	Val	Gly	Gln
				245				250						255	
Phe	Glu	Tyr	Leu	Ser	Gly	Thr	Pro	Glu	Leu	Ser	Lys	Asn	Phe	Asp	Asp
		260					265						270		
Tyr	Asp	Tyr	Thr	Leu	Glu	Asn	Thr	Met	Asp	Ala	Ala	Asp	Gln	Arg	His
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Asp	Val	Thr	Thr	Arg	Val	Val	Ile	Ser	Gly	Thr	Tyr	Thr	Pro	Asn	Gly
	290					295					300				
Phe	Gly	Ser	Val	Ala	Thr	Arg	Asn	Gly	Gly	Gly	Ile	Ser	Phe	Tyr	Tyr
305					310					315					320
Phe	Lys	Gly	Asn	Ala	Ile	Arg	Val	Glu	Ala	Met	Arg	Asp	Met	Val	Asn
				325					330					335	
Asp	Arg	Gly	Gln	Ile	Pro	Gln	Glu	Leu	Arg	Asp	Ala	Gly	Leu	Glu	Gln
			340					345					350		
Ala	Ile	Glu	Asn	Val	Leu	Ala	Trp	Asn	Pro	Asn	Ala	Phe	Asn	Ser	Pro
		355					360					365			
Thr	Val	Ser	Phe	Ser	Glu	Gly	Ile	His	Phe	Tyr	Tyr	Gln	Gly	Val	
	370					375					380				
Cys	Tyr	Tyr	Thr	Val	Leu	Ile	Arg	His	Phe	Ser	Asn	Asn	Met	Val	Pro
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Val	Leu	Met	Gly	Tyr	Gly	Arg	Tyr	Gly	Val	Val	Arg	Asn	Asn	Val	Tyr
				405					410					415	
Gln	Leu	Ser	Ile	Asn	Lys	Ile	Ile	Gly	Pro	Gly	Gln	Pro	Val	Ile	Asn
				420				425					430		
Pro	Pro	Gly	Thr	Asp	Pro	Asp	Asp	Glu	Asp	Thr	Ser	Trp	Ile	Ser	Ala
		435					440					445			
Asp	Val	Asn	Ile	Met	Arg	Trp	Tyr	Ile	Arg	Asn	Gln	Asn	Val	Glu	Glu
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Leu	Leu														
465															

&lt;210&gt; 5513

&lt;211&gt; 464

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5513

Gly Asn Val Ala Asn Phe Val Ala Asp Lys Leu Leu Phe Val Phe Asn

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 254. **Abstract**

<211> 409  
 <212> PRT  
 <213> B.fragilis

<400> 5514

Lys	Cys	Tyr	Phe	Cys	Ser	Leu	Asn	Asn	Ile	Ile	Leu	Phe	Tyr	Met	Asp
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Ser	Asn	His	Leu	Ser	Pro	Leu	Arg	Lys	Gly	Val	Val	Gly	Val	Gln	Phe
			20					25						30	
Leu	Phe	Val	Ala	Phe	Gly	Ala	Thr	Val	Leu	Val	Pro	Leu	Leu	Val	Gly
			35				40					45			
Leu	Asp	Pro	Ser	Thr	Ala	Leu	Phe	Thr	Ala	Gly	Ile	Gly	Thr	Leu	Leu
	50					55					60				
Phe	His	Leu	Val	Thr	Lys	Gly	Lys	Val	Pro	Ile	Phe	Leu	Gly	Ser	Ser
65					70					75				80	
Phe	Ala	Phe	Ile	Ala	Pro	Ile	Ile	Lys	Ala	Thr	Glu	Leu	Tyr	Gly	Leu
				85					90					95	
Ala	Gly	Thr	Leu	Ser	Gly	Met	Val	Gly	Val	Ala	Met	Val	Tyr	Phe	Val
			100					105					110		
Met	Ser	Ala	Leu	Val	Lys	Trp	Gln	Gly	Ile	Arg	Leu	Ile	Glu	Arg	Leu
		115					120					125			
Phe	Pro	Pro	Val	Val	Ile	Gly	Pro	Val	Ile	Ile	Leu	Ile	Gly	Leu	Ser
	130					135					140				
Leu	Ala	Gly	Thr	Gly	Val	Asn	Met	Ala	Lys	Glu	Asn	Trp	Thr	Leu	Ala
145					150					155				160	
Leu	Leu	Ser	Leu	Phe	Thr	Ala	Val	Ile	Val	Ser	Ile	Arg	Ala	Lys	Gly
				165					170					175	
Leu	Leu	Lys	Leu	Ile	Pro	Ile	Phe	Cys	Gly	Ile	Ile	Val	Gly	Tyr	Ile
			180					185					190		
Ala	Ala	Leu	Ile	Phe	Tyr	Asp	Val	Asp	Met	Ser	Gly	Val	Arg	Asn	Ala
		195					200					205			
Ala	Trp	Leu	Gly	Phe	Pro	Gln	Phe	Val	Phe	Pro	Gln	Phe	Ser	Trp	Glu
	210					215					220				
Pro	Ile	Leu	Phe	Met	Met	Pro	Val	Ala	Ile	Ala	Pro	Val	Ile	Glu	His
225					230					235				240	
Ile	Gly	Asp	Val	Tyr	Val	Val	Asn	Thr	Val	Thr	Gly	Lys	Asp	Tyr	Val
				245					250					255	
Lys	Asp	Pro	Gly	Leu	His	Arg	Thr	Leu	Leu	Gly	Asp	Gly	Leu	Ala	Cys
			260					265					270		
Leu	Cys	Ala	Gly	Leu	Leu	Gly	Gly	Pro	Pro	Val	Thr	Thr	Tyr	Ser	Glu
		275					280					285			
Val	Thr	Gly	Ala	Met	Ser	Leu	Thr	Lys	Val	Thr	Asn	Pro	Gln	Val	Ile
	290					295					300				
Arg	Ile	Ala	Ala	Ile	Thr	Ala	Ile	Leu	Phe	Ser	Val	Ile	Gly	Lys	Val
305					310					315				320	
Ser	Ala	Leu	Leu	Lys	Ser	Ile	Pro	Ser	Ala	Val	Leu	Gly	Gly	Ile	Met
				325					330					335	
Leu	Leu	Leu	Phe	Gly	Thr	Ile	Ala	Cys	Ala	Gly	Ile	Ala	Asn	Leu	Val
			340					345					350		
Asn	Asn	Cys	Ile	Asp	Leu	Ser	Arg	Thr	Arg	Asn	Ile	Ile	Ile	Val	Ser
		355					360					365			
Leu	Thr	Leu	Thr	Ile	Gly	Ile	Gly	Gly	Ala	Val	Leu	Ala	Trp	Gly	Glu
	370				375						380				
Phe	Ser	Leu	Ser	Gly	Ile	Gly	Leu	Ala	Ala	Leu	Val	Gly	Val	Gly	Leu
385					390					395					400
Asn	Leu	Val	Leu	Pro	Lys	Glu	Glu	Arg							
				405											

<210> 5515

<211> 310  
 <212> PRT  
 <213> B.fragilis

<400> 5515

Thr Pro Tyr Ala Asn Met Gly Arg Trp Ile Ile Leu Leu Trp Trp Arg  
 1 5 10 15  
 Leu Gln Leu Glu Thr Arg Leu His Cys Asn Ile Leu Leu Arg Leu Ala  
 20 25 30  
 Gly Ala Ala Ile Gly Glu Tyr Phe Arg Asp Thr Gly Arg His Ala Leu  
 35 40 45  
 Val Val Tyr Asp Asp Leu Ser Lys Gln Ala Val Ser Tyr Arg Glu Val  
 50 55 60  
 Ser Leu Ile Leu Arg Arg Pro Ser Gly Arg Glu Ala Tyr Pro Gly Asp  
 65 70 75 80  
 Ile Phe Tyr Leu His Ser Arg Leu Leu Glu Arg Ala Ala Lys Ile Ile  
 85 90 95  
 Asn Gln Glu Glu Val Ala Arg Glu Met Asn Asp Leu Pro Glu Ser Leu  
 100 105 110  
 Lys Gly Lys Val Lys Gly Gly Gly Ser Leu Thr Ala Leu Pro Ile Ile  
 115 120 125  
 Glu Thr Gln Ala Gly Asp Val Ser Ala Tyr Ile Pro Thr Asn Val Ile  
 130 135 140  
 Ser Ile Thr Asp Gly Gln Ile Phe Leu Asp Thr Asp Leu Phe Asn Gln  
 145 150 155 160  
 Gly Asn Arg Pro Ala Ile Asn Val Gly Ile Ser Val Ser Arg Val Gly  
 165 170 175  
 Gly Asn Ala Gln Ile Lys Ala Met Lys Lys Val Ala Gly Thr Leu Lys  
 180 185 190  
 Ile Asp Gln Ala Gln Tyr Arg Glu Leu Glu Ala Phe Ser Lys Phe Ser  
 195 200 205  
 Gly Asp Met Asp Pro Val Thr Ala Leu Thr Ile Asp Lys Gly Gln Lys  
 210 215 220  
 Asn Ala Arg Leu Leu Val Gln Pro Gln Tyr Ser Pro Met Pro Val Glu  
 225 230 235 240  
 Lys Gln Ile Ala Ile Leu Tyr Cys Gly Ile His Gly Leu Leu Arg Asn  
 245 250 255  
 Val Pro Leu Asp Lys Val Glu Asp Phe Glu Ala Ala Phe Leu Asn Thr  
 260 265 270  
 Leu Ala Leu Asp His Gln Ala Asp Val Leu Asp Val Leu Lys Thr Gly  
 275 280 285  
 Val Ile Asn Asp Glu Val Thr Lys Ala Ile Glu Glu Thr Ala Ala Met  
 290 295 300  
 Val Ala Lys Gln Tyr Ser  
 305 310

<210> 5516  
 <211> 292  
 <212> PRT  
 <213> B.fragilis

<400> 5516

Lys Ile Met Ala Ser Leu Lys Glu Val Lys Thr Arg Ile Asn Ser Val  
 1 5 10 15  
 Gln Ser Thr Arg Lys Ile Thr Ser Ala Met Lys Met Val Ala Ser Ala  
 20 25 30  
 Lys Leu His Lys Ala Gln Gly Ala Ile Glu Asn Met Leu Pro Tyr Gln  
 35 40 45  
 Arg Lys Leu Asn Lys Ile Leu Thr Asn Phe Leu Ser Ala Asp Leu Pro

50 55 60  
 Val Glu Ser Pro Phe Cys Val Glu Arg Pro Val Lys Arg Val Ala Ile  
 65 70 75 80  
 Val Ala Phe Ser Ser Asn Ser Ser Leu Cys Gly Ala Phe Asn Ala Asn  
 85 90 95  
 Val Leu Lys Met Phe Leu Gln Thr Val Gly Glu Tyr Arg Glu Leu Gly  
 100 105 110  
 Gln Asp Asn Ile Leu Ile Tyr Pro Val Gly Lys Lys Ile Glu Glu Ala  
 115 120 125  
 Val Lys Lys Leu Gly Phe Phe Pro Gln Gly Ser Tyr Gln Lys Leu Ala  
 130 135 140  
 Asp Lys Pro Ser Tyr Asp Glu Ala Ala Ala Leu Ala Lys Leu Leu Met  
 145 150 155 160  
 Glu Leu Phe Leu Glu Lys Asn Ile Asp Arg Val Glu Leu Ile Tyr His  
 165 170 175  
 His Phe Lys Ser Met Gly Val Gln Glu Leu Leu Arg Glu Arg Tyr Leu  
 180 185 190  
 Pro Ile Asp Leu Ser Ala Val Gln Asn Asp Glu Glu Arg Gly Gly Val  
 195 200 205  
 Val Asn Asp Tyr Ile Ile Glu Pro Ser Ala Ala Gln Leu Ile Ala Asp  
 210 215 220  
 Leu Ile Pro Gln Val Leu Ser Gln Lys Ile Phe Thr Ala Ala Leu Asp  
 225 230 235 240  
 Ser Asn Ala Ser Glu His Ala Ala Arg Thr Leu Ala Met Gln Ile Ala  
 245 250 255  
 Thr Asp Asn Ala Asn Glu Leu Ile Gln Glu Leu Thr Lys Gln Tyr Asn  
 260 265 270  
 Lys Thr Arg Gln Gln Ala Ile Thr Asn Glu Leu Leu Asp Ile Val Gly  
 275 280 285  
 Gly Ser Met Ala  
 290

&lt;210&gt; 5517

&lt;211&gt; 285

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5517

Arg Lys Leu Tyr Leu Cys Ile Glu Phe Ser Cys Thr Lys Ile Lys Ile  
 1 5 10 15  
 Met Arg Gln Ile Lys Gly Ile Thr Ala Ile Phe Leu Cys Cys Leu Leu  
 20 25 30  
 Val Ala Gly Cys Asp Leu Ile Asp Tyr His Pro Tyr Asp Val Asp Ile  
 35 40 45  
 Lys Gly Glu Arg Asp Ile Asn Ala Lys Asn Ile Gln Lys Ile Glu Ala  
 50 55 60  
 Lys Cys Leu Gly Lys Ser Thr Ile Arg Phe Ile Ala Met Gly Asp Ser  
 65 70 75 80  
 Gln Arg Trp Tyr Asp Glu Thr Val Asp Phe Val Asn Ala Val Asn Lys  
 85 90 95  
 Arg Asp Asp Ile Asp Phe Val Val His Gly Gly Asp Phe Ser Asp Phe  
 100 105 110  
 Gly Leu Thr Asp Glu Phe Leu Trp Gln Arg Asp Ile Met Asn Lys Leu  
 115 120 125  
 Lys Val Pro Tyr Val Gly Leu Ile Gly Asn His Asp Cys Leu Gly Thr  
 130 135 140  
 Gly Glu Asp Ala Phe Arg Gln Ile Phe Gly Asp Thr Asn Phe Ser Phe  
 145 150 155 160  
 Ile Ala Gly Gly Val Lys Phe Val Cys Leu Asn Thr Asn Ala Met Glu



				165					170					175					
Tyr	Asp	Tyr	Ser	Glu	Pro	Ile	Pro	Asp	Phe	Asp	Tyr	Ile	Glu	Arg	Gln				
			180						185					190					
Leu	Thr	Glu	Arg	Ala	Asp	Glu	Phe	Asn	Lys	Thr	Val	Phe	Cys	Met	His				
			195						200					205					
Ala	Arg	Pro	Leu	Cys	Asp	Gln	Phe	Asn	Asn	Asn	Val	Ala	Lys	Val	Phe				
			210						215					220					
Gln	Met	Tyr	Val	Arg	Gln	Phe	Pro	Gly	Leu	Gln	Phe	Cys	Thr	Val	Ala				
			225						230					235					240
His	Glu	His	Arg	Ile	Ser	Ala	Ser	Asp	Val	Phe	Asp	Asp	Gly	Val	Met				
				245					250					255					
Tyr	Tyr	Gly	Ser	Asn	Cys	Met	Lys	Asn	Arg	Ser	Tyr	Leu	Val	Phe	Thr				
			260						265					270					
Ile	Lys	Pro	Asp	Gly	Tyr	Asp	Tyr	Glu	Val	Val	Glu	Phe							
			275						280					285					

&lt;210&gt; 5518

&lt;211&gt; 326

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5518

Ser	Ile	Thr	Gln	Thr	Ala	Val	Met	Lys	Asn	Tyr	Ile	Val	Asn	Glu	Leu				
1				5					10					15					
Ile	Ala	Ala	Met	Lys	Glu	Arg	Ile	Pro	Arg	Gly	Ile	Asn	Leu	Ala	Asn				
			20						25				30						
Tyr	Leu	Thr	Asp	Ala	Leu	Cys	Met	Gly	Lys	Glu	Ala	Val	Tyr	Arg	Arg				
			35					40					45						
Leu	Arg	Gly	Glu	Val	Ala	Phe	Thr	Phe	Asp	Glu	Ile	Ala	Met	Ile	Ser				
			50				55				60								
Cys	Lys	Leu	Gly	Ile	Ser	Ile	Asp	Gln	Ile	Ile	Gly	Asn	His	Gln	Ser				
			65			70				75				80					
Asn	Arg	Val	Thr	Phe	Asp	Leu	Asn	Leu	Leu	His	Ser	Pro	Asp	Pro	Leu				
				85					90					95					
Glu	Ser	Tyr	Tyr	Glu	Ile	Ile	Glu	Arg	Tyr	Leu	Arg	Ile	Phe	Asn	Tyr				
			100					105					110						
Val	Lys	Asp	Asp	Ile	Ser	Thr	Lys	Ile	Tyr	Thr	Ala	Ser	Asn	Val	Ile				
			115					120					125						
Pro	Phe	Thr	Leu	Tyr	Ser	Ser	Tyr	Glu	Tyr	Leu	Ser	Lys	Phe	Arg	Leu				
			130				135					140							
Cys	Arg	Trp	Ile	Tyr	Gln	Asn	Gly	Lys	Ile	Arg	Thr	Pro	Asn	Ser	Leu				
			145			150				155				160					
Ser	Gly	Met	His	Ile	Pro	Asp	Lys	Ala	Val	His	Ala	His	Lys	Leu	Leu				
				165					170					175					
Ser	Glu	Ala	Val	Lys	Ala	Cys	Arg	Lys	Thr	Cys	Phe	Ile	Trp	Asp	Ser				
			180						185					190					
Asn	Val	Phe	Tyr	Ser	Phe	Val	Lys	Glu	Met	Lys	Tyr	Phe	Ala	Gly	Leu				
			195					200					205						
Asn	Leu	Ile	Ser	Glu	Thr	Asp	Leu	Ile	His	Leu	Lys	Asn	Glu	Leu	Glu				
			210				215						220						
Leu	Leu	Leu	His	Glu	Leu	Glu	Gln	Ile	Ser	Ala	Lys	Gly	Glu	Phe	Ser				
			225			230				235				240					
Asn	Gly	Asn	Lys	Val	Ala	Ile	Tyr	Leu	Ser	Asn	Ile	Asp	Phe	Glu	Ala				
				245					250					255					
Thr	Tyr	Ser	Tyr	Ile	Glu	Lys	Lys	Asp	Phe	Gln	Ile	Ser	Leu	Leu	Arg				
			260					265						270					
Val	Tyr	Ser	Ile	Asn	Ser	Met	Asp	Ser	Gln	Ser	Pro	Arg	Ile	Cys	Gly				
			275				280						285						
Ile	Gln	Lys	Asp	Trp	Ile	Gln	Ser	Leu	Lys	Arg	His	Ser	Thr	Leu	Ile				

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290                      295                      300  
 Ser Glu Ser Gly Glu Ser Gln Arg Ile Thr Phe Leu Glu Gln Gln Lys  
 305                      310                      315                      320  
 Ser Phe Ile Asp Thr Leu  
                          325

<210> 5519  
 <211> 328  
 <212> PRT  
 <213> B.fragilis

<400> 5519  
 Thr Glu Lys Gln Tyr Lys Leu Lys Ile Met Ile Thr Asn Glu Leu Asn  
 1                      5                      10                      15  
 Ile Gly Leu Ile Glu Ala Ala Lys Glu Lys Met Pro Thr Gly Thr Asn  
                          20                      25                      30  
 Leu Ala Asn Thr Leu Met Asp Ile Leu Tyr Ile Gly Lys Glu Ala Ile  
                          35                      40                      45  
 Tyr Arg Arg Leu Arg Gly Glu Val Pro Phe Thr Leu Ala Glu Ala Ala  
                          50                      55                      60  
 Val Ile Ser Arg Lys Leu Gly Ile Ser Leu Asp Lys Met Ile Gly Val  
 65                      70                      75                      80  
 Ser Phe Ser Asn Asn Ala Val Phe Asp Leu Asn Val Val His His Thr  
                          85                      90                      95  
 Asn Thr Phe Glu Thr Tyr His Asp Ile Leu Thr Lys Tyr Val Asn Ala  
                          100                      105                      110  
 Phe Asp Asn Ile Arg Glu Asp Pro Thr Thr Glu Met Ala Thr Ser Ser  
                          115                      120                      125  
 Asn Ile Leu Pro Gln Ala Leu Tyr Leu Lys His Asp Val Leu Ser Lys  
                          130                      135                      140  
 Phe Arg Leu Phe Lys Trp Met Tyr Gln Asn Glu Asn Ile Lys Cys Lys  
 145                      150                      155                      160  
 His Phe Asp Glu Leu Glu Ile Pro His Lys Ile Tyr Asn Ile Gln Lys  
                          165                      170                      175  
 Asp Phe Val Asn Met Thr Gln Gln Met Lys Thr Thr Asp Tyr Ile Trp  
                          180                      185                      190  
 Asp Asn Thr Val Phe Glu His Val Val Arg Asp Ile Gln Phe Phe Ser  
                          195                      200                      205  
 Glu Ile His Leu Val Ser Glu Glu Asp Lys Glu Leu Ile Lys Asp Asp  
 210                      215                      220  
 Leu Leu Leu Leu Thr Asp Glu Leu Glu Glu Leu Ala Gly Lys Gly Lys  
 225                      230                      235                      240  
 Tyr Glu Thr Gly Asn Asp Val Arg Ile Tyr Ile Ser Asn Ile Lys Phe  
                          245                      250                      255  
 Asp Ala Thr Tyr Ser Tyr Val Ala Thr Ser Asn Ser His Ile Ser Met  
                          260                      265                      270  
 Ile Arg Ile Tyr Ser Ile Asn Ala Ile Thr Thr Gln Asp Asp Gly Met  
                          275                      280                      285  
 Phe Arg Ser Leu Lys Glu Trp Val Gln Ser Leu Lys Lys Phe Ser Thr  
                          290                      295                      300  
 Gln Ile Ser Glu Ser Gly Glu Met Gln Arg Ile Arg Phe Phe Asn Glu  
 305                      310                      315                      320  
 Gln Arg Glu Ile Ile Asn Thr Leu  
                          325

<210> 5520  
 <211> 463  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5520

Gln Phe Phe Leu Val Pro Phe Phe Leu Leu Ser Asn Asn Phe Leu Ile  
 1 5 10 15  
 Leu Ser Glu Tyr Leu Ile Ile Ala Phe Lys Arg Phe Ala Ser Trp Gly  
 20 25 30  
 Ser Cys Thr Phe Ala Ser Lys Ile Thr Arg Thr Met Ile Arg Lys Phe  
 35 40 45  
 Phe Ile Leu Phe Phe Leu Gly Phe Phe Gly Phe Ala Glu Ala Gln Gln  
 50 55 60  
 Pro Ser Val Gly Leu Thr Leu Lys Glu Ala Glu Gln Arg Phe Leu Lys  
 65 70 75 80  
 Cys Asn Leu Ser Leu Leu Ala Glu Arg Tyr Asn Val Asp Ile Ala Gln  
 85 90 95  
 Ala Arg Leu Leu Gln Ala Gly Leu Phe Asp Asn Pro Val Ile Ser Phe  
 100 105 110  
 Glu Gln Asn Val Tyr Asn Arg Leu Asn Gly Lys Tyr Phe Asp Phe Gly  
 115 120 125  
 Lys Lys Gly Glu Ser Val Val Glu Ile Glu Gln Val Ile Arg Leu Ala  
 130 135 140  
 Gly Gln Arg Asn Lys Gln Ile Arg Leu Glu Lys Ile Asn Lys Glu Ile  
 145 150 155 160  
 Ala Gly Tyr Gln Phe Glu Glu Val Met Arg Thr Leu Arg Gln Glu Leu  
 165 170 175  
 Gly Glu Ala Phe Thr Glu Val Phe Tyr Leu Ser Lys Ser Leu Ser Val  
 180 185 190  
 Tyr Asp Lys Glu Ile Asn Ser Leu Glu His Leu Leu Thr Gly Ile Lys  
 195 200 205  
 Glu Gln His Ala Lys Gly Asn Ile Ser Leu Met Glu Met Ala Arg Leu  
 210 215 220  
 Glu Ser Met Leu Leu Ser Leu Lys Lys Asp Lys Asn Glu Cys Glu Ser  
 225 230 235 240  
 Asn Tyr Leu Ser Arg Arg Gly Glu Leu Asn Leu Leu Leu Asn Leu Pro  
 245 250 255  
 Ala Asp Phe Arg Thr Glu Pro Val Ile Asp Glu Gly Asp Leu Arg Gln  
 260 265 270  
 Leu Asn Met Asp Arg Leu Ser Tyr Ala Asp Leu Gln Glu Arg Val His  
 275 280 285  
 Gly Arg Pro Asp Gln Lys Leu Ala Arg Ser Cys Val Thr Ala Ser Gln  
 290 295 300  
 Ala Asp Leu Lys Leu Gln Lys Ala Leu Ala Phe Pro Glu Phe Ala Val  
 305 310 315 320  
 Lys Gly Ser Tyr Asp Arg Gln Gly Asn Phe Ile Asn Asn Tyr Phe Ala  
 325 330 335  
 Ile Gly Phe Ser Met Ser Val Pro Ile Phe Asn Arg Asn Gln Gly Asn  
 340 345 350  
 Ile Lys Met Ala Arg Phe Asn Leu Leu Lys Ala Asp Arg Glu Gln Glu  
 355 360 365  
 Tyr Ser Arg Asn Lys Ala Glu Ala Glu Leu Tyr Ala Ala Tyr Thr Ala  
 370 375 380  
 Leu Glu Lys Ala Cys Gln Leu Tyr Gln Ser Thr Asp Met Gly Leu Glu  
 385 390 395 400  
 Gln Asn Phe Glu Lys Leu Ile Ala Gly Ala Asn Glu Asn Phe Ile Lys  
 405 410 415  
 Arg Asn Ile Ser Leu Leu Glu Phe Ile Asp Phe Tyr Asp Ser Tyr Lys  
 420 425 430  
 Glu Thr Cys Ile Arg Leu Tyr Glu Ile Lys Lys Asn Val Leu Leu Gly  
 435 440 445  
 Ile Glu Asn Leu Asn Ala Val Ala Gly Gln Pro Ile Phe Asn Tyr

450

455

460

<210> 5521  
 <211> 225  
 <212> PRT  
 <213> B.fragilis

<400> 5521

Gln Thr Arg Lys Arg Met Phe Met Asp Ala Thr Lys Lys Ile Thr Ala  
 1 5 10 15  
 Leu Phe Asp Cys Asp Gly Val Ile Val Asp Thr Glu Gly Gln Tyr Thr  
 20 25 30  
 Val Phe Trp Asn Glu Met Gly Gln Lys Tyr Val Asn Asp Ala Asn Phe  
 35 40 45  
 Gly Ser Lys Val Lys Gly Gln Thr Leu Val Gln Ile Tyr Asp Lys Tyr  
 50 55 60  
 Phe Ala Gly Glu Pro Glu Lys Gln Arg Asp Ile Thr Glu Ala Leu Asn  
 65 70 75 80  
 Arg Phe Glu Ile Lys Met Asn Tyr Asp Tyr Val Pro Gly Ile Val Glu  
 85 90 95  
 Phe Ile Ala Asp Leu Arg Arg His Gly Val Lys Ile Ala Leu Val Thr  
 100 105 110  
 Ser Ser Asn Thr Ala Lys Met Glu Asn Val Tyr His Ala His Pro Glu  
 115 120 125  
 Phe Lys Ser Leu Phe Asp Glu Ile Leu Thr Ala Glu Arg Phe Lys Arg  
 130 135 140  
 Ser Lys Pro Asp Pro Glu Cys Phe Leu Leu Gly Met Thr Ile Phe Gly  
 145 150 155 160  
 Ser Asp Ser Lys Asp Ser Tyr Val Phe Glu Asp Ser Phe His Gly Leu  
 165 170 175  
 Gln Ala Gly Arg Ser Ser Gly Ala Ile Val Val Gly Leu Ala Thr Thr  
 180 185 190  
 Asn Ser Arg Glu Ala Ile Ala Asp Lys Ala Asp Tyr Val Ile Asp Asp  
 195 200 205  
 Phe Arg Gly Met Thr Tyr Glu Lys Leu Leu Thr Ile Thr Ser Arg Tyr  
 210 215 220  
 Ile  
 225

<210> 5522  
 <211> 228  
 <212> PRT  
 <213> B.fragilis

<400> 5522

Tyr His Phe Asn Leu Lys Ile Met Thr Tyr Leu Ala Thr Asn Pro Leu  
 1 5 10 15  
 Phe His Gly Ile Ser Pro Glu Thr Leu Ser Arg Asp Phe Asp Gly Ile  
 20 25 30  
 Val Ser His Leu Arg Met Phe Arg Lys Gly Asp Ile Leu Ala Arg Gln  
 35 40 45  
 Gly Asp Val Cys Asn Arg Leu Met Ile Leu Leu Lys Gly Ser Val Arg  
 50 55 60  
 Gly Glu Met Ile Asp Tyr Ser Gly Arg Leu Ile Lys Val Glu Asp Ile  
 65 70 75 80  
 Ile Ala Pro Arg Ala Ile Ala Pro Leu Phe Leu Phe Gly Ala Asp Asn  
 85 90 95  
 Arg Tyr Pro Val Glu Val Thr Ala Asn Glu Ala Thr Glu Val Phe Glu  
 100 105 110

Ile Pro Lys Glu Ser Val Leu Lys Leu Phe Arg Arg Asn Glu Lys Phe  
           115                          120                          125  
 Leu Glu Asn Tyr Met Asn Leu Ser Ala Asn Tyr Ala Arg Thr Leu Ala  
           130                          135                          140  
 Asp Lys Leu Phe Phe Met Ser Phe Lys Thr Ile Arg Gln Lys Leu Ala  
   145                          150                          155                          160  
 Ser Tyr Leu Leu Arg Met Leu Lys Gln Gln Gly Asp Ser Pro Ile Gln  
                           165                          170                          175  
 Leu Asp Arg Ser Gln Gln Glu Leu Ala Asp Tyr Phe Gly Val Ser Arg  
                           180                          185                          190  
 Pro Ser Leu Ala Arg Glu Leu Ala His Met Gln Asp Asp Gly Leu Ile  
                           195                          200                          205  
 Lys Thr Asp Arg Lys Leu Val His Ile Leu Arg Lys Glu Asp Met Met  
           210                          215                          220  
 Gln Leu Ile Gln  
 225

<210> 5523

<211> 70

<212> PRT

<213> B.fragilis

<400> 5523

Ser Leu His Asn Ala Lys His Gln Gln Met Cys Ser Val Leu His Gln  
 1                          5                          10                          15  
 Arg Ile Thr Arg Leu Val Ala Ala Thr Lys Thr Pro Lys Arg Lys His  
                           20                          25                          30  
 Thr Tyr Ile Phe Pro Leu Val Asn Ile Asp Gln Ile Gly Met Glu Arg  
                           35                          40                          45  
 Ala Asp Lys Lys His Cys Lys Arg Lys Lys Tyr Lys Tyr Asp Ser Arg  
           50                          55                          60  
 Leu Thr Asp Arg His Ala  
 65                          70

<210> 5524

<211> 131

<212> PRT

<213> B.fragilis

<400> 5524

Lys Lys His Asn Met Pro Glu Lys His Ile Tyr Glu Tyr Ala Val Val  
 1                          5                          10                          15  
 Arg Ile Val Pro Lys Val Glu Arg Glu Glu Phe Ile Asn Val Gly Val  
                           20                          25                          30  
 Ile Leu Phe Ser Lys Gln Ala Ala Phe Ile Arg Met Arg Tyr Glu Ile  
                           35                          40                          45  
 Asn Lys Lys Arg Leu Glu Ala Leu Ser Pro Glu Pro Asp Ile Asp Ser  
           50                          55                          60  
 Phe Arg Lys Tyr Leu Glu Ala Phe Ser Lys Val Cys Ala Gly Cys Pro  
   65                          70                          75                          80  
 Thr Gly Gly Gly Ile Ala Lys Leu Glu Val Pro Glu Arg Phe Arg Trp  
                           85                          90                          95  
 Leu Thr Ala His Arg Ser Ser Cys Ile Gln Thr Ser Arg Pro His Val  
                           100                          105                          110  
 Gly Tyr Ser Asp Asn Leu Glu Glu Thr Leu Glu Arg Leu Phe Glu Glu  
           115                          120                          125  
 Leu Val Leu  
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<400> 5525  
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 Thr Glu Arg Glu Tyr Ala Asp Thr Phe Ser Ile Arg Ile Leu His  
 20 25 30  
 Lys Asn Val Arg Phe Ile Arg Glu Ile Glu Lys Lys Asp Lys Asn Arg  
 35 40 45  
 Ser Phe Leu Leu Gly Asn Met Ser Tyr Phe Val Thr Phe Ala Pro Pro  
 50 55 60  
 Tyr Ser Ile Ala  
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 <212> PRT  
 <213> B.fragilis

<400> 5526  
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 1 5 10 15  
 Ala Ala Ala Gly Val Gly Leu Ser Lys Leu Gly Ala Ala Leu Gly Ala  
 20 25 30  
 Gly Leu Ala Val Ile Gly Ala Gly Ile Gly Ile Gly Lys Ile Gly Gly  
 35 40 45  
 Ser Ala Met Glu Gly Ile Ala Arg Gln Pro Glu Ala Ser Gly Asp Ile  
 50 55 60  
 Arg Met Asn Met Ile Ile Ala Ala Ala Leu Val Glu Gly Val Ala Leu  
 65 70 75 80  
 Leu Ala Leu Val Val Cys Leu Leu Val Leu Phe Leu  
 85 90

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 <212> PRT  
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 Ser Tyr Ile Lys Met Asn Met Glu Ile Asn Pro Ser Glu Tyr Lys Ile  
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 Leu Ile Val Asp Asp Val Met Ser Asn Val Leu Leu Leu Lys Val Leu  
 20 25 30  
 Leu Thr Asn Glu Lys Phe Asn Ile Val Thr Ala Ser Asn Gly Asn Gln  
 35 40 45  
 Ala Leu Asp Gln Val Lys Lys Glu Asn Pro Asp Leu Ile Leu Leu Asp  
 50 55 60  
 Val Met Met Pro Asp Met Ser Gly Phe Glu Val Ser Gln Lys Leu Lys  
 65 70 75 80  
 Ala Asp Pro Glu Ala Ala His Ile Pro Ile Ile Phe Leu Thr Ala Leu  
 85 90 95  
 Asn Ser Thr Ala Asp Ile Val Lys Gly Phe Gln Val Gly Gly Asn Asp  
 100 105 110  
 Phe Ile Ser Lys Pro Phe Asn Lys Glu Glu Leu Ile Ile Arg Val Ser  
 115 120 125  
 His Gln Ile Ser Leu Val Ala Ala Lys Arg Ile Ile Glu Ala Lys Thr

130		135		140
Glu Glu Leu Lys Lys Thr	Ile Ile Gly Arg Asp	Lys Leu Tyr Ser Val		
145		150		160
Ile Ala His Asp Leu Arg Ser Pro Met Gly Ser Ile Lys Met Val Leu				
	165	170		175
Asn Met Leu Ile Leu Ser Leu Pro Lys Glu Lys Ile Gly Glu Asp Met				
	180	185		190
Tyr Glu Leu Leu Thr Met Ala Asn Gln Thr Thr Glu Asp Val Phe Ser				
	195	200		205
Leu Leu Asp Asn Leu Leu Lys Trp Thr Lys Ser Gln Ile Gly Lys Leu				
	210	215		220
Lys Val Val Tyr Gln Asp Ile Asp Met Val Glu Val Val Glu Gly Val				
225		230		240
Gly Glu Ile Phe Ala Met Val Ala Gly Leu Lys Asn Ile Arg Leu Arg				
	245	250		255
Ile Glu Ser Pro Glu Cys Gln Ala Val His Ala Asp Ile Asp Met Ile				
	260	265		270
Lys Thr Val Ile Arg Asn Leu Ile Ser Asn Ala Ile Lys Phe Ser Asn				
	275	280		285
Glu Gly Ser Glu Val Leu Ile Lys Val Glu Glu Ser Asp Gly Met Ser				
	290	295		300
Val Val Ser Val Lys Asp Ser Gly Cys Gly Ile Asp Glu Glu Ser Gln				
305		310		320
Lys Lys Leu Leu His Thr Asp Thr His Phe Ser Thr Phe Gly Thr Asn				
	325	330		335
Asn Glu Glu Gly Ser Gly Leu Gly Leu Leu Leu Cys Gln Asp Phe Val				
	340	345		350
Val Lys Asn Gly Gly Lys Leu Trp Phe Thr Ser Val Lys Asp Glu Gly				
	355	360		365
Ser Thr Phe Tyr Phe Ser Ile Pro Leu Lys Lys				
	370	375		

&lt;210&gt; 5528

&lt;211&gt; 532

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5528

Ile Cys Thr Lys Phe Arg Asp Tyr Met Lys Thr Val Lys Thr His Ile				
1	5	10		15
Thr Gln Leu Leu His Ala Met Asn Lys Gly Ile Phe Glu Lys Glu His				
	20	25		30
Pro Ile Ala Leu Ser Leu Leu Ser Ala Ile Ser Gly Glu Ser Ile Phe				
	35	40		45
Phe Leu Gly Pro Pro Gly Val Ala Lys Ser Leu Ile Ala Arg Arg Leu				
	50	55		60
Lys Leu Ala Phe Asp Gln Ser Thr Ala Phe Glu Tyr Leu Met Ser Arg				
65		70		80
Phe Ser Thr Pro Asp Glu Ile Phe Gly Pro Val Ser Ile Ser Lys Leu				
	85	90		95
Lys Asp Glu Asp Lys Tyr Glu Arg Ile Ile Glu Gly Tyr Leu Pro Ser				
	100	105		110
Ala Thr Ile Val Phe Leu Asp Glu Ile Trp Lys Ala Gly Pro Ser Ile				
	115	120		125
Gln Asn Ser Leu Leu Thr Val Ile Asn Glu Lys Val Tyr Arg Asn Gly				
	130	135		140
Gln Tyr Thr Ile Gln Leu Pro Leu Lys Gly Leu Ile Ala Ala Ser Asn				
145		150		160
Glu Leu Pro Ala Gln Gly Glu Gly Leu Glu Ala Leu Trp Asp Arg Phe				

165 170 175  
 Leu Ile Arg Tyr Phe Ile Gly Asn Ile Glu Gln Glu Phe Ala Phe Asp  
 180 185 190  
 Gln Met Ile Ala Ser Val Asn Asp Met Glu Ala Glu Ile Pro Thr Gly  
 195 200 205  
 Leu Ser Ile Thr Glu Glu Gln Tyr Thr Asp Trp Arg Thr Gln Ile Ser  
 210 215 220  
 Gln Ile Lys Ile His Tyr Thr Val Phe Glu Leu Ile His Ser Ile Lys  
 225 230 235 240  
 Arg Gln Ile Glu Lys Tyr Asn Ile Gln Lys Glu Glu Val Pro His Ser  
 245 250 255  
 Thr Leu Tyr Ile Ser Asp Arg Arg Trp Lys Lys Ile Val Ser Leu Leu  
 260 265 270  
 Arg Thr Ser Ala Phe Leu Asn Glu Thr Asp Thr Ile Arg Phe Ser Asp  
 275 280 285  
 Cys Thr Leu Leu Leu His Cys Leu Trp Asn Glu Ile Glu Gln Ile Pro  
 290 295 300  
 Ile Ile Glu Gln Met Val Ser Ser Ala Leu Asp Glu Cys Ile Ser His  
 305 310 315 320  
 Tyr Leu Cys Gly Glu Arg Thr Leu Glu Gln Lys Leu Ser Ser Ile Arg  
 325 330 335  
 Glu Asp Met Lys Ser Glu His Ser Leu Arg Glu Thr Lys Asp Pro Ala  
 340 345 350  
 Leu Gln Ile Val Asp Thr Phe Tyr His Gln Ile Glu Arg Tyr Pro Val  
 355 360 365  
 Ala Gly Asn Leu Leu Ile Phe Ala Ser Asp Tyr Gln Ser Leu Gln Lys  
 370 375 380  
 Asp Thr Gln Lys Leu Phe Tyr Ile Gln Arg Asp Lys Tyr Arg Pro Val  
 385 390 395 400  
 Asn Trp Ile Leu Lys Val Tyr Asp His Val Arg Asn Arg Asn Ile Ser  
 405 410 415  
 Gln Ser Ala Ile Val Ser Leu Lys Lys Gly Thr Arg Ser Val Phe Ile  
 420 425 430  
 Asn Asn Gln Glu Tyr Pro Leu Ala Cys Asn Ala Gly Tyr Asp Ile Ala  
 435 440 445  
 Tyr Pro Gln Glu Ala Ser Leu Pro Phe Glu Phe Arg Phe Gln Glu Val  
 450 455 460  
 Ile Asp Leu Tyr His Asn Arg Glu Asn Glu Leu Lys Arg Met Thr Asp  
 465 470 475 480  
 Ile Glu Leu Thr Tyr Cys Lys Glu His Leu Phe Met Asp Asp Lys Gln  
 485 490 495  
 Arg Asn Met Val Lys Gln Ile Leu Asn Arg Gln Lys Glu Met Leu Glu  
 500 505 510  
 Ile Tyr Gln Asn Glu Ile Arg Glu Ile Ala Tyr Thr His Gly Leu Glu  
 515 520 525  
 Asn Lys Glu Tyr  
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 <212> PRT  
 <213> B.fragilis

<400> 5529  
 Ser Lys Gln Lys Ile Gln Gln Thr Gly Lys Arg Ile His Ala Ala Pro  
 1 5 10 15  
 Leu Pro Asn Gly Ile Gln Lys His His Arg Leu Ser Val Val Cys Arg  
 20 25 30  
 Arg Arg Asn Asn Arg Lys Ser Met Lys Thr Phe Leu Gln Leu Val Ala



		35					40					45				
Gln	Asp	Leu	Tyr	Cys	Lys	Ile	Gly	Asn	Asp	Leu	Ser	Arg	Thr	Ala	Ile	
	50					55					60					
Ile	Phe	Pro	Asn	Lys	Arg	Ala	Ser	Leu	Phe	Phe	Asn	Glu	His	Leu	Ala	
65				70					75					80		
Asn	Gln	Ser	Asp	Gln	Pro	Leu	Trp	Ser	Pro	Ala	Tyr	Leu	Ser	Ile	Ser	
			85					90					95			
Glu	Leu	Phe	Gln	His	Leu	Ser	Val	Leu	Lys	Leu	Gly	Asp	Pro	Ile	Arg	
			100					105					110			
Leu	Val	Cys	Glu	Leu	Tyr	Lys	Ile	Phe	Arg	Glu	Glu	Thr	Asn	Ser	Asp	
		115					120					125				
Glu	Ser	Leu	Asp	Asp	Phe	Tyr	Phe	Trp	Gly	Glu	Leu	Leu	Ile	Ser	Asp	
	130					135					140					
Phe	Asp	Asp	Val	Asp	Lys	Asn	Leu	Val	His	Ala	Asp	Lys	Leu	Phe	Thr	
145				150					155					160		
Asn	Leu	Gln	Asp	Leu	Lys	Asn	Val	Met	Asp	Asp	Tyr	Glu	Phe	Leu	Asp	
			165						170					175		
Gln	Glu	Gln	Glu	Gln	Ala	Ile	Gln	Gln	Phe	Phe	Gln	Asn	Phe	Ser	Ile	
			180					185					190			
Glu	Lys	Arg	Thr	Leu	Leu	Lys	Glu	Lys	Phe	Ile	Ser	Leu	Trp	Asp	Lys	
		195					200					205				
Leu	Gly	Asp	Ile	Tyr	Arg	Arg	Tyr	His	Lys	Lys	Leu	Glu	Glu	Leu	Gly	
	210					215					220					
Phe	Ala	Tyr	Glu	Gly	Met	Leu	Tyr	Arg	Asn	Val	Ile	Glu	Gln	Leu	Glu	
225					230					235				240		
Pro	Asp	Ser	Leu	Lys	Tyr	Asp	Cys	Tyr	Val	Phe	Val	Gly	Phe	Asn	Val	
			245						250					255		
Leu	Asn	Lys	Val	Glu	Thr	His	Phe	Phe	Gln	Gln	Leu	Gln	Asn	Ala	Gly	
			260					265					270			
Lys	Ala	Leu	Phe	Tyr	Trp	Asp	Tyr	Asp	Val	Phe	Tyr	Thr	Gln	Leu	Pro	
		275						280					285			
Ser	Arg	Gln	Lys	Gln	Arg	His	Glu	Ala	Gly	Glu	Phe	Ile	Asn	Arg	Asn	
		290				295					300					
Leu	Lys	Leu	Phe	Pro	Asn	Glu	Leu	Pro	Ala	Glu	Leu	Phe	Asn	Glu	Leu	
305					310					315				320		
Ile	Lys	Pro	Lys	Lys	Val	Arg	Phe	Ile	Ser	Ser	Pro	Thr	Glu	Asn	Ala	
			325						330					335		
Gln	Ala	Arg	Tyr	Leu	Pro	Gln	Trp	Val	His	Glu	Asn	Leu	Ser	Asn	Glu	
			340					345					350			
Glu	Lys	Glu	Asn	Ala	Val	Val	Leu	Cys	Asn	Glu	Ala	Leu	Leu	Leu	Pro	
		355					360					365				
Val	Leu	His	Ser	Ile	Pro	Glu	Val	Val	Arg	Asn	Val	Asn	Ile	Thr	Met	
	370					375					380					
Gly	Phe	Pro	Leu	Ala	Gln	Thr	Pro	Val	Tyr	Ser	Phe	Ile	Asn	Ala	Ile	
385					390											

Thr	Leu	Val	Asn	Arg	Leu	Leu	Asn	Leu	Ile	Asp	Asn	Asn	Glu	Leu	Gln
		515					520					525			
Val	Arg	Ile	Glu	Thr	Leu	Lys	Arg	Leu	Leu	Asn	Lys	Ile	Leu	Asn	Ala
		530					535					540			
Ala	Asn	Ile	Pro	Phe	His	Gly	Glu	Pro	Ala	Ile	Gly	Met	Gln	Ile	Met
		545				550					555				560
Gly	Val	Leu	Glu	Thr	Arg	Asn	Leu	Asp	Phe	Arg	Asn	Leu	Leu	Leu	Leu
				565						570					575
Ser	Leu	Asn	Glu	Gly	Gln	Leu	Pro	Lys	Ser	Gly	Gly	Glu	Ser	Ser	Phe
			580						585					590	
Ile	Pro	Tyr	Asn	Leu	Arg	Lys	Ala	Phe	Gly	Met	Thr	Thr	Ile	Glu	His
			595				600						605		
Lys	Asn	Ala	Val	Tyr	Ala	Tyr	Tyr	Phe	Tyr	Arg	Leu	Ile	Gln	Arg	Ala
		610					615					620			
Glu	Asn	Ile	Thr	Leu	Met	Tyr	Asn	Thr	Ser	Ser	Asp	Gly	Leu	Asn	Arg
		625			630					635					640
Gly	Glu	Trp	Ser	Arg	Phe	Met	Leu	Gln	Phe	Leu	Ile	Glu	Trp	Pro	His
				645					650						655
Glu	Ile	Ser	Arg	Glu	Tyr	Leu	Glu	Ala	Gly	Gln	Ser	Pro	Gln	Asn	Ser
			660					665						670	
Lys	Glu	Ile	Arg	Ile	Thr	Lys	Thr	Pro	Glu	Ile	Ile	Asp	Arg	Leu	Tyr
		675					680						685		
Arg	Thr	Tyr	Asp	Phe	Ser	Arg	Asn	Pro	Asp	Ala	Leu	Ile	Leu	Ser	Pro
		690					695					700			
Ser	Ala	Leu	Asn	Thr	Tyr	Leu	Asp	Cys	Arg	Leu	Lys	Phe	Tyr	Phe	Arg
		705				710					715				720
Tyr	Val	Ala	Arg	Leu	Lys	Ala	Pro	Asp	Glu	Val	Ser	Ala	Glu	Ile	Asp
				725					730						735
Ser	Ala	Leu	Phe	Gly	Thr	Ile	Phe	His	Arg	Ser	Ala	Gln	Leu	Val	Tyr
			740					745					750		
Leu	Asp	Leu	Thr	Ala	Asn	Lys	Arg	Asp	Val	His	Lys	Glu	Asp	Leu	Glu
		755					760						765		
Arg	Leu	Leu	Arg	Asp	Asn	Ile	Arg	Leu	Gln	Asn	Tyr	Val	Asp	Ile	Ala
		770				775						780			
Phe	Lys	Glu	Ile	Phe	Phe	His	Val	Pro	Ile	Asp	Glu	Lys	Pro	Glu	Tyr
		785				790				795					800
Asn	Gly	Ile	Gln	Leu	Ile	Asn	Ser	Lys	Val	Ile	Thr	Ser	Tyr	Leu	Arg
			805						810						815
Gln	Leu	Leu	Arg	Asn	Asp	Leu	Gln	Tyr	Ala	Pro	Phe	Arg	Met	Met	Gly
			820					825					830		
Met	Glu	Gln	Glu	Val	Val	Glu	Asp	Ile	Arg	Ile	Glu	Gly	Pro	Val	Gly
		835					840					845			
Lys	Leu	Ser	Leu	Arg	Ile	Gly	Gly	Thr	Ile	Asp	Arg	Met	Asp	Ser	Lys
		850				855					860				
Glu	Gly	Thr	Leu	Arg	Ile	Val	Asp	Tyr	Lys	Thr	Gly	Gly	Ser	Pro	Lys
		865			870					875					880
Val	Pro	Thr	Asn	Ile	Glu	Gln	Leu	Phe	Thr	Pro	Ala	Glu	Gly	Arg	Pro
			885						890						895
Asn	Tyr	Ile	Phe	Gln	Thr	Phe	Leu	Tyr	Ala	Ala	Ile	Met	Ala	Arg	Gln
			900					905					910		
Gln	Ala	Leu	Lys	Val	Ala	Pro	Ser	Leu	Leu	Tyr	Ile	His	Arg	Ala	Ala
		915					920					925			
Ser	Glu	Ser	Tyr	Ser	Pro	Val	Ile	Glu	Ile	Gly	Glu	Ala	Arg	Lys	Pro
		930				935					940				
Lys	Leu	Pro	Val	Asp	Asp	Phe	Ser	Val	Tyr	Glu	Asp	Glu	Phe	Arg	Glu
		945			950					955					960
Arg	Leu	Leu	Lys	Leu	Glu	Glu	Ile	Tyr	Asp	Asp	Lys	Glu	Glu	Phe	
			965					970						975	
Thr	Gln	Thr	Glu	Asp	Thr	Lys	Lys	Cys	Glu	Tyr	Cys	Asp	Phe	Lys	Ala

980  
Met Cys Lys Arg  
995

985

990

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<211> 60  
<212> PRT  
<213> B.fragilis

<400> 5530  
Tyr Arg Gln Lys Lys Gly Pro Val Ser Ala Lys Pro Ser Leu Ser Phe  
1 5 10 15  
Met Glu Leu Lys His Tyr Ser Asp Leu Met Leu Phe Thr Gly Phe Ser  
20 25 30  
Leu Ala Ile Cys Gln Asp Leu Pro Ile Met Lys Thr Lys Ile Lys Thr  
35 40 45  
Asn Lys Gln Ile Ala Val Thr Thr Tyr Gln Pro Ala  
50 55 60

<210> 5531  
<211> 122  
<212> PRT  
<213> B.fragilis

<400> 5531  
Lys Ser Lys Asn Met Lys Val Ile Asp Leu Thr Lys Glu Ser Phe Val  
1 5 10 15  
Glu Lys Val Ala Glu Phe Gln Glu Tyr Pro Asn Lys Trp Asp Phe Lys  
20 25 30  
Gly Asp Lys Pro Cys Leu Val Asp Phe His Ala Pro Trp Cys Val Tyr  
35 40 45  
Cys Lys Ala Leu Ser Pro Ile Leu Asp Gln Leu Ala Val Glu Tyr Asp  
50 55 60  
Gly Lys Ile Asp Ile Tyr Lys Val Asp Val Asp Gln Glu Pro Glu Leu  
65 70 75 80  
Glu Ala Ala Phe Ala Ile Arg Thr Ile Pro Asn Leu Leu Leu Cys Pro  
85 90 95  
Met Gly Gly Lys Pro Ser Met Lys Leu Gly Thr Met Asn Lys Thr Gln  
100 105 110  
Leu Lys Ala Leu Ile Glu Glu Val Leu Leu  
115 120

<210> 5532  
<211> 448  
<212> PRT  
<213> B.fragilis

<400> 5532  
Val Glu Lys Lys Lys Met Lys Lys Ile Tyr Val Leu Ala Leu Leu Ser  
1 5 10 15  
Cys Leu Leu Met Leu Ser Ala Cys Asp Ser Tyr Leu Asp Ile Arg Pro  
20 25 30  
Val Gly Ser Val Ile Pro Gln Thr Ala Glu Glu Tyr Arg Ala Leu Leu  
35 40 45  
Ala Arg Ala Tyr Leu Asn Val Pro Asn Asp Arg Gly Leu Ala Cys Leu  
50 55 60  
Arg Ser Asp Glu Met Leu Val Asn Asp Asn Glu Tyr Asp Arg Asn Ser  
65 70 75 80  
Tyr Gly Asp Ile Glu Arg Trp Asn Asp Val Ser Pro Phe Pro Gly Thr

				85					90					95	
Ser	Gln	Phe	Thr	Trp	Ser	Asn	Phe	Tyr	Asn	Val	Leu	Phe	Ile	Ala	Asn
			100					105					110		
Gln	Val	Ile	Glu	Ser	Gln	Lys	Glu	Ile	Thr	Glu	Gly	Thr	Pro	Glu	Val
		115					120					125			
Val	Asn	Gln	Leu	Val	Gly	Glu	Ala	His	Leu	Leu	Arg	Ala	Tyr	Leu	His
	130					135					140				
Phe	Val	Leu	Val	Asn	Leu	His	Gly	Gln	Pro	Tyr	Thr	Lys	Ser	Gly	Ala
145					150					155					160
Leu	Asn	Ser	Lys	Ser	Ile	Pro	Leu	Lys	Leu	Asp	Thr	Asp	Leu	Glu	Lys
			165					170						175	
Thr	Leu	Gly	Arg	Asn	Thr	Val	Glu	Glu	Val	Tyr	Thr	Ser	Ile	Leu	Ser
		180					185						190		
Asp	Ile	Glu	His	Ala	Arg	Glu	Leu	Ile	Asn	Lys	Glu	Lys	Trp	Glu	Thr
	195					200					205				
Val	Phe	Ser	Tyr	Arg	Phe	Asn	Val	Leu	Ser	Val	Asp	Ala	Leu	Gln	Ser
	210					215					220				
Arg	Val	Ser	Leu	Tyr	Met	Gly	Ala	Trp	Pro	Lys	Cys	Leu	Glu	Ser	Ala
225					230					235					240
Glu	Ala	Val	Leu	Ala	Lys	Lys	Ser	Val	Leu	Val	Asp	Met	Asn	Glu	Thr
			245					250						255	
Pro	Leu	Ala	Leu	Pro	Asn	His	Phe	Glu	Ser	Val	Glu	Ser	Ile	Thr	Ala
		260						265					270		
Leu	Glu	Gln	Val	Met	Gly	Ser	Ser	Val	Asn	Asn	Ala	Val	Trp	Val	Pro
	275						280					285			
Ala	Thr	Phe	Leu	Ala	Leu	Tyr	Gln	Glu	Gly	Asp	Lys	Arg	Leu	Ala	Ala
	290					295				300					
Tyr	Phe	Ala	Ala	Pro	Asp	Glu	Asn	Gly	Asn	Arg	Lys	Ser	Ser	Lys	Gly
305					310					315					320
Gly	Lys	Arg	Glu	Phe	Ser	Cys	Thr	Phe	Arg	Val	Gly	Glu	Leu	Tyr	Leu
			325					330						335	
Asn	Ala	Ala	Glu	Ala	Ala	Ala	Asn	Met	Asp	Lys	Leu	Pro	His	Ala	Arg
			340					345					350		
Met	Arg	Leu	Leu	Glu	Leu	Met	Arg	Lys	Arg	Tyr	Thr	Pro	Glu	Ala	Tyr
	355					360						365			
Asp	Lys	Lys	Glu	Asn	Ala	Val	Asn	Val	Met	Asp	Lys	Asn	Ala	Leu	Ile
	370				375					380					
Ser	Glu	Ile	Leu	Asn	Glu	Arg	Ala	Arg	Glu	Leu	Ala	Phe	Glu	Gly	His
385					390					395					400
Arg	Trp	Phe	Asp	Leu	Arg	Arg	Thr	Thr	Arg	Pro	Arg	Met	Val	Lys	Val
			405					410						415	
Leu	Gln	Gly	Lys	Thr	Tyr	Ile	Leu	Glu	Gln	Asp	Asp	Pro	Arg	Tyr	Thr
		420					425					430			
Ile	Pro	Ile	Pro	Arg	Asp	Ala	Ile	Ala	Ala	Asn	Pro	Gly	Leu	Ala	Asn
	435					440						445			

&lt;210&gt; 5533

&lt;211&gt; 560

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5533

Met	Cys	Arg	Asn	Tyr	Lys	Met	Glu	Gln	Glu	Gln	Arg	Phe	Ile	Gly	Tyr
1			5					10					15		
Ile	Glu	Gln	Ser	Ile	Ile	Asn	Asn	Trp	Asp	Ala	Asn	Ala	Leu	Thr	Asp
		20					25					30			
Tyr	Lys	Gly	Ile	Thr	Leu	Gln	Tyr	Lys	Asp	Val	Ala	Arg	Lys	Ile	Ala
	35					40				45					
Lys	Phe	His	Ile	Ile	Leu	Glu	Met	Ala	Gly	Ile	Gln	Pro	Gly	Asp	Lys





&lt;400&gt; 5536

Ser	Phe	Arg	Lys	Cys	Lys	Ser	Glu	Met	Lys	Val	Leu	Asn	Ala	Asn	Ile
1				5					10					15	
Glu	Glu	Ile	His	Val	Arg	Val	Lys	Pro	Ile	Lys	Thr	Ser	Tyr	Cys	Leu
			20					25					30		
Met	Leu	Gln	Ser	Lys	Ala	Leu	Ile	Pro	Asp	Asn	Thr	Pro	Tyr	Pro	Leu
		35					40					45			
Leu	Phe	Ile	Leu	Leu	Asn	Ile	Leu	Tyr	Cys	Val	Ile	Arg	Pro	Lys	Ile
	50					55					60				
Asn	Ile	Ser	Leu	Trp	Leu	Tyr	Val	Ser	Tyr	Leu	Leu				
65					70					75					

&lt;210&gt; 5537

&lt;211&gt; 248

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5537

Met	Ile	Arg	Asn	Lys	Val	Met	Glu	Gln	Ser	Phe	Ile	Glu	Tyr	Ser	Leu
1				5					10					15	
Gly	Lys	Asp	Ala	Ser	Ser	Ala	Val	Leu	Trp	Val	Tyr	Pro	Val	Arg	Lys
			20					25					30		
Pro	Arg	Gly	Lys	Ala	Ile	Ile	Met	Cys	Pro	Gly	Gly	Gly	Phe	Asn	Gln
		35					40					45			
Ile	Ala	Ser	Asp	His	Glu	Gly	Arg	Asp	Phe	Ala	Ala	Trp	Phe	Asn	Asn
	50					55					60				
Gln	Gly	Ile	Thr	Tyr	Ala	Val	Leu	Asn	Tyr	Arg	Met	Pro	Asn	Gly	Asp
65					70				75					80	
Val	Glu	Val	Ile	Arg	Glu	Asp	Ile	Arg	Glu	Ala	Ile	Arg	Leu	Ile	Arg
				85				90					95		
Arg	Gln	Ser	Ala	Glu	Trp	Gly	Ile	His	Gln	Leu	Gly	Val	Met	Gly	Ala
			100					105					110		
Ser	Ile	Gly	Gly	Tyr	Ile	Ala	Ala	Thr	Ala	Ala	Thr	Leu	Tyr	Thr	Gly
		115					120					125			
Thr	Asp	Arg	Pro	Asp	Phe	Gln	Val	Leu	Leu	Tyr	Pro	Val	Ile	Ser	Met
	130					135					140				
Thr	Asp	Arg	Leu	Thr	His	Trp	Pro	Ser	Arg	Glu	Arg	Met	Leu	Gly	Glu
145					150					155				160	
Thr	Ile	Ser	Glu	Gly	Leu	Lys	Glu	Thr	Leu	Ser	Leu	Glu	Leu	His	Val
			165					170					175		
Thr	Ala	Asp	Thr	Pro	Pro	Thr	Phe	Ile	Val	Leu	Ala	Glu	Asp	Asp	Gln
			180					185					190		
Ala	Val	Ser	Pro	Leu	Asn	Ser	Ile	Val	Tyr	Tyr	Thr	Ala	Leu	Leu	Lys
		195					200					205			
His	Gly	Val	Ser	Ala	Gly	Leu	His	Ile	Tyr	Pro	Glu	Gly	Gly	His	Ser
	210					215					220				
Phe	Gly	Phe	Arg	Asp	Ser	Phe	Ile	Tyr	Lys	Glu	Leu	Trp	Thr	Asp	Glu
225					230					235				240	
Leu	Gln	Lys	Trp	Leu	Leu	Thr	Phe								
					245										

&lt;210&gt; 5538

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5538

Arg	Glu	Ser	Asp	Lys	Ile	Lys	Asp	Leu	Phe	Ile	Phe	Arg	Leu	Pro	Ile
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1                      5                      10                      15  
 Leu Lys Ile Ala Ser Lys Asp Ile Leu Glu Gln Thr Ala Leu Ser Thr  
                     20                      25                      30  
 Ser Phe Gly Asn Ser Ser Ala Thr Val Asp Ala Ile Gly Ile Asn Val  
                     35                      40                      45  
 Tyr Asp Pro Ala Phe Pro Leu Ile Thr Pro Ser Leu Ile His Ser Val  
                     50                      55                      60  
 Phe Thr Met  
 65

&lt;210&gt; 5539

&lt;211&gt; 254

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5539

Val Leu Arg Glu Ala Ile Pro Ala Ala Leu Ser Ile Pro Gly Arg Glu  
 1                      5                      10                      15  
 Gly Tyr Pro Val Tyr Ala Ile Phe Ala Ile Lys Thr Ala Gly Leu Asp  
                     20                      25                      30  
 Glu Glu Gly Tyr Pro Leu Phe Tyr Asp Lys Glu Gly Lys Lys Val Thr  
                     35                      40                      45  
 Leu Lys Glu Leu Tyr Arg Trp Gln Asp Pro Phe Gly Leu Gly Phe Thr  
                     50                      55                      60  
 Val Asn Ser Asp Val Thr Pro Ala Glu Glu Arg Ser Phe Tyr Ser Tyr  
 65                      70                      75                      80  
 Ile Gly Ser Gln Asp Thr Pro Tyr Thr Gly Gly Leu Ile Asn Thr Phe  
                     85                      90                      95  
 Ser Tyr Lys Asn Trp Glu Leu Thr Ala Asn Leu Ser Phe Asn Leu Gly  
                     100                      105                      110  
 Gly Tyr Val Arg Thr Thr Pro Ser Tyr Asn Phe Ile Asn Phe Asp Arg  
                     115                      120                      125  
 Gly Gln Asn Val Asn Ser Asp Ile Leu Asp Arg Trp Thr Pro Glu Asn  
                     130                      135                      140  
 Thr Asp Gly Arg Leu Pro Ala Leu Ile Thr Ser Glu Lys Arg Ala Asp  
 145                      150                      155                      160  
 Glu Tyr Tyr Trp Tyr Asp Gln Lys Ser Glu Ile Tyr Lys Asn Leu Asp  
                     165                      170                      175  
 Ile Trp Val Lys Lys Leu Asn Tyr Phe Arg Leu Gln Asn Leu Arg Leu  
                     180                      185                      190  
 Gly Tyr Arg Leu Pro Glu Lys Met Thr Lys Ser Leu Gly Met Gly Ser  
                     195                      200                      205  
 Ala Ser Val Ala Ile Glu Gly Arg Asn Leu Leu Val Phe Gly Ser Ser  
                     210                      215                      220  
 Tyr Lys Asn Phe Leu Asp Pro Glu Ser Met Tyr Asn Pro Tyr Ala Pro  
 225                      230                      235                      240  
 Pro Ile Pro Lys Ser Ile Thr Phe Ser Leu Asn Leu Asn Phe  
                     245                      250

&lt;210&gt; 5540

&lt;211&gt; 349

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5540

His Leu Arg Glu Glu Ser Leu Ser Phe Ala Trp Tyr Leu Lys Arg Glu  
 1                      5                      10                      15  
 Lys Ala Met Tyr Lys Gln Thr Ile Arg Pro Val Leu Phe Leu Met Glu  
                     20                      25                      30



Pro Glu Lys Val His Ala Leu Leu Val Ser Cys Leu Lys Cys Tyr Arg  
 35 40 45  
 His Leu Pro Trp Cys Arg Cys Trp Ile Arg His Leu Tyr Thr Cys Ser  
 50 55 60  
 Asp Lys Gln Leu Ile Trp Asn His Leu Thr Phe Arg Asn Arg Ile Gly  
 65 70 75 80  
 Leu Ser Ala Gly Phe Asp Lys Gly Ala Glu Ile Phe Asp Glu Leu Ala  
 85 90 95  
 Asp Cys Gly Phe Gly Phe Ile Glu Val Gly Thr Val Thr Pro Asp Ser  
 100 105 110  
 Gln Asp Gly Asn Pro Arg Pro Arg Ile Phe Arg Leu Pro Gln Cys Glu  
 115 120 125  
 Ser Leu Ile Ser Arg Thr Gly Phe Asn Asn Pro Gly Leu Asp Val Ile  
 130 135 140  
 Lys Arg Arg Leu Glu Gln Lys Ser Gly Ser Tyr Val Leu Gly Val Asn  
 145 150 155 160  
 Ile Asn Lys Asn Pro Ser Ser Glu Gly Glu Gln Ala Val Ala Asp Phe  
 165 170 175  
 Leu Arg Leu Tyr Lys Glu Leu His Pro His Val Gly Tyr Phe Thr Leu  
 180 185 190  
 Asn Trp Gly Ser Val Asp Val Ala Leu Met Lys Gln Val Leu Gln Gly  
 195 200 205  
 Leu Ala Ala Phe Arg Val Glu Gln Asn Ile His Val Pro Leu Leu Leu  
 210 215 220  
 Lys Leu Pro Ala Asp Ile Thr Glu Glu Gly Met Asp Asp Val Ile Asp  
 225 230 235 240  
 Cys Thr Arg Leu Tyr Arg Val Asp Gly Val Ile Ala Thr Gly Pro Thr  
 245 250 255  
 Met Glu Arg Ser Tyr Leu Lys Gly Tyr Ser Pro Ala Gln Leu Gln Lys  
 260 265 270  
 Ile Gly Ser Gly Gly Ile Ser Gly Arg Gly Ile Gly Glu Arg Ser Leu  
 275 280 285  
 Lys Ala Val Ser Tyr Leu Arg Ala His Ala Gly Lys Ser Leu Leu Ile  
 290 295 300  
 Val Gly Ala Gly Gly Ile Ile Thr Pro Ala Asp Ala Arg Arg Met Leu  
 305 310 315 320  
 Asp Ala Gly Ala Asn Leu Ile Gln Ile Tyr Ser Ser Phe Ile Tyr Glu  
 325 330 335  
 Gly Pro Gly Ile Val Lys Lys Met Ile Gln Glu Ile Lys  
 340 345

&lt;210&gt; 5541

&lt;211&gt; 1057

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5541

Met Ser Glu Leu Ile Val Tyr Lys Ala Ser Ala Gly Ser Gly Lys Thr  
 1 5 10 15  
 Phe Thr Leu Ala Val Glu Tyr Ile Lys Leu Leu Ile Arg Asn Pro Arg  
 20 25 30  
 Ala Tyr Arg Gln Ile Leu Ala Val Thr Phe Thr Asn Lys Ala Thr Ala  
 35 40 45  
 Glu Met Lys Glu Arg Ile Leu Ser Gln Leu Tyr Gly Ile Gln Ile Gly  
 50 55 60  
 Asp Pro Asp Ser Asp Ala Tyr Leu Lys Arg Ile Ile Ala Glu Thr Gly  
 65 70 75 80  
 His Ser Glu Asp Glu Ile Arg Thr Thr Ala Gly Ile Ala Leu Gly Tyr  
 85 90 95

Met	Leu	His	Asp	Tyr	Ser	Arg	Phe	Arg	Val	Glu	Thr	Ile	Asp	Ser	Phe
			100					105					110		
Phe	Gln	Ser	Val	Met	Arg	Asn	Leu	Ala	Arg	Glu	Leu	Glu	Leu	Ser	Pro
			115					120					125		
Asn	Leu	Asn	Ile	Glu	Leu	Asn	Asn	Val	Glu	Val	Leu	Ser	Asp	Ala	Val
			130					135					140		
Asp	Ser	Met	Ile	Glu	Lys	Leu	Gly	Pro	Asn	Ser	Pro	Val	Leu	Val	Trp
145					150					155					160
Leu	Leu	Asp	Tyr	Ile	Asp	Glu	Arg	Ile	Ala	Asp	Asp	Lys	Arg	Trp	Asn
			165						170					175	
Val	Ser	Asp	Glu	Ile	Lys	Ser	Phe	Gly	Arg	Asn	Ile	Phe	Asp	Glu	Gly
			180					185					190		
Tyr	Ile	Glu	Lys	Gly	Asp	Gly	Leu	Arg	Arg	Arg	Leu	Arg	Asp	Pro	Asn
			195				200						205		
Val	Ile	His	Asn	Tyr	Arg	Lys	Thr	Leu	Lys	Glu	Met	Glu	Thr	Ala	Ala
			210				215					220			
Leu	Glu	Gln	Met	Lys	Glu	Phe	Ala	Gln	Gln	Phe	Glu	Asn	Val	Leu	Ser
225					230					235					240
Ser	Gln	Ser	Leu	Lys	Pro	Thr	Asp	Leu	Lys	Asn	Gly	Ala	Lys	Gly	Ile
				245						250				255	
Gly	Ser	Tyr	Phe	Asn	Lys	Leu	Lys	Asn	Gly	Ile	Leu	Gly	Asp	Glu	Ile
			260					265					270		
Val	Asn	Ala	Thr	Val	Ile	Lys	Cys	Leu	Asp	Asp	Glu	Thr	Asn	Trp	Ala
			275				280					285			
Ala	Lys	Thr	Ser	Lys	Gln	Tyr	Thr	Asp	Ile	Ile	Leu	Leu	Ala	Ser	Ser
			290				295					300			
Ile	Leu	Met	Pro	Leu	Leu	Gln	Asn	Ala	Glu	Gln	Tyr	Arg	Ser	Arg	Asn
305					310					315					320
Asn	Arg	Ile	Val	Asn	Ser	Cys	Arg	Leu	Ser	Thr	Gln	His	Leu	Ser	Lys
				325						330				335	
Val	Arg	Leu	Leu	Thr	Asn	Ile	Asp	Glu	Glu	Val	Arg	Gln	Leu	Asn	Arg
				340				345					350		
Glu	Asn	Asn	Arg	Phe	Leu	Leu	Ser	Asp	Thr	Asn	Ala	Leu	Leu	His	Gln
			355				360					365			
Leu	Val	Lys	Asp	Gly	Asp	Ser	Ser	Phe	Val	Phe	Glu	Lys	Ile	Gly	Thr
			370				375					380			
Asn	Ile	Arg	Asn	Val	Met	Ile	Asp	Glu	Phe	Gln	Asp	Thr	Ser	Arg	Met
385					390					395					400
Gln	Trp	Asp	Asn	Phe	Lys	Leu	Leu	Leu	Leu	Glu	Gly	Leu	Ser	Gln	Gly
				405						410				415	
Ala	Asp	Ser	Leu	Ile	Val	Gly	Asp	Val	Lys	Gln	Ser	Ile	Tyr	Arg	Trp
			420					425					430		
Arg	Asn	Gly	Asp	Trp	Gly	Ile	Leu	Asn	Gly	Leu	Asn	Lys	Gln	Leu	Gly
			435				440					445			
Tyr	Phe	Ser	Ile	Arg	Thr	Glu	Thr	Leu	Lys	Thr	Asn	Arg	Arg	Ser	Glu
			450				455					460			
Thr	Asn	Ile	Ile	Arg	Phe	Asn	Asn	Ser	Ile	Phe	Ser	Ala	Ala	Val	Asp
465					470					475					480
Tyr	Leu	Asn	Glu	Met	Tyr	Asn	Lys	Gln	Leu	Gly	Ser	Ile	Cys	Glu	Pro
				485						490				495	
Leu	Ile	Asn	Ala	Tyr	Ala	Asp	Val	Glu	Gln	Glu	Ser	Pro	Arg	Asn	Lys
			500					505					510		
Gln	Gln	Gly	Tyr	Val	Lys	Val	Glu	Phe	Leu	Glu	Pro	Asp	Glu	Glu	His
			515				520					525			
Asp	Tyr	Thr	Glu	Gln	Thr	Leu	Ile	Ser	Leu	Gly	Met	Glu	Val	Glu	His
530						535					540				
Leu	Leu	Gln	Ser	Gly	Val	Lys	Leu	Asn	Asp	Ile	Ala	Ile	Leu	Val	Arg
545					550					555					560
Lys	Asn	Lys	Ser	Ile	Pro	Arg	Ile	Ala	Asp	Tyr	Phe	Asp	Lys	Gln	Leu

1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811

Asn Ile Thr Gly Tyr Leu Trp Tyr Val Glu Glu Glu Ile Ile Glu Lys  
 1045 1050 1055  
 Val

<210> 5542  
 <211> 364  
 <212> PRT  
 <213> B.fragilis

<400> 5542  
 Phe Met Asn Trp Thr Lys Tyr Leu Pro Cys Leu Leu Ile Leu Gly Met  
 1 5 10 15  
 Gly Ser Gly Cys Ser Ser Glu Val Lys His Pro Gly Glu Asn Gln Asp  
 20 25 30  
 Leu Cys Leu Thr Asp Ser Leu Leu Lys Ile Val Ser Val Asp Thr Val  
 35 40 45  
 His Leu His Asp Val Ala Asp Glu Leu Thr Leu Asn Gly Arg Val Thr  
 50 55 60  
 Phe Asn Gln Glu Gln Val Ala His Val Tyr Pro Met Phe Gly Gly Thr  
 65 70 75 80  
 Val Thr Glu Leu Arg Ala Glu Val Gly Asp Tyr Val Arg Lys Gly Asp  
 85 90 95  
 Ile Leu Ala Ile Leu Arg Ser Gly Glu Val Ala Asp Tyr Glu Arg Gln  
 100 105 110  
 Met Lys Glu Ala Glu Gln Gln Val Ile Ile Ala Arg Arg Asn Val Asn  
 115 120 125  
 Ala Thr Arg Asp Met Phe Asp Ser Gly Leu Ala Ser Asp Lys Asp Val  
 130 135 140  
 Leu Gln Ala Arg Gln Glu Leu Ile Asn Ala Glu Ala Glu Glu Asn Arg  
 145 150 155 160  
 Ile Lys Glu Ile Phe Ser Ile Asn Asn Phe Ser Gly Arg Ser Phe Tyr  
 165 170 175  
 Glu Val Lys Ser Pro Val Ser Gly Phe Ile Val Glu Lys Ser Val Ser  
 180 185 190  
 Arg Asn Met Gln Leu Arg Pro Asp Gln Gly Glu Glu Ile Phe Thr Val  
 195 200 205  
 Ser Gly Leu Glu His Val Trp Val Met Ala Asp Val Tyr Glu Ser Asp  
 210 215 220  
 Ile Ser Lys Val Ala Glu Gly Ala Ser Val His Ile Thr Thr Leu Ala  
 225 230 235 240  
 Tyr Pro Gly Lys Val Phe Ser Gly Asn Ile Asp Lys Val Tyr His Met  
 245 250 255  
 Leu Asn Thr Glu Ser Lys Thr Met Asn Val Arg Val Lys Leu Cys Asn  
 260 265 270  
 Glu Asp Tyr Leu Leu Lys Pro Gly Met Phe Thr Thr Val Asn Val Glu  
 275 280 285  
 Cys Lys Ser Ser Gly Lys Gln Met Pro Arg Ile Asn Ala His Ala Leu  
 290 295 300  
 Ile Phe Glu Gly Gly Lys Asn Tyr Val Val Thr Val Thr Pro Asp Asn  
 305 310 315 320  
 Arg Leu Lys Val Lys Glu Val Asp Val Tyr Lys Arg Gln Asn Gln Glu  
 325 330 335  
 Cys Tyr Val Arg Ser Gly Leu Ser Glu Gly Asp Arg Val Leu Asn Gln  
 340 345 350  
 Asn Val Leu Leu Val Tyr Asn Ser Leu Asn Ala Asp  
 355 360

<210> 5543

<211> 208  
 <212> PRT  
 <213> B.fragilis

<400> 5543

Val	Pro	Ser	Cys	Val	Ser	Thr	Trp	Tyr	Glu	Thr	Leu	Phe	Ser	Ala	Gly
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Tyr	Gly	Phe	Asp	Arg	Gln	Thr	Leu	Thr	Lys	Pro	Val	Val	Phe	Pro	
			20					25				30			
Asp	Glu	Asp	Arg	Ala	Arg	Gln	Phe	Pro	Leu	His	Gln	Lys	Thr	Tyr	Lys
		35					40					45			
Glu	Asn	Ala	Tyr	Val	Ser	Phe	Phe	Ser	Thr	Ala	Ser	Tyr	Ser	Leu	Met
	50					55					60				
Asn	Arg	Tyr	Thr	Phe	Gly	Gly	Ser	Ile	Arg	Phe	Asp	Gly	Ser	Asp	Leu
65					70					75					80
Phe	Gly	Val	Asp	Lys	Lys	Tyr	Arg	Tyr	Leu	Pro	Leu	Tyr	Ser	Val	Ser
				85					90					95	
Gly	Leu	Trp	Arg	Leu	Ser	Asn	Glu	Pro	Phe	Met	Gln	Gly	Thr	Arg	Lys
			100					105					110		
Trp	Met	Asp	Asn	Leu	Ala	Phe	Arg	Val	Ser	Tyr	Gly	Ile	Gln	Gly	Asn
		115					120					125			
Ile	Asp	Lys	Asn	Thr	Ser	Pro	Phe	Leu	Leu	Gly	Lys	Tyr	Ile	Val	Asp
	130					135					140				
Asn	Ile	Leu	Pro	Gly	Gly	Ser	Glu	His	Met	Ile	Asp	Ile	Asn	Ser	Ala
145					150					155					160
Pro	Asn	Lys	Lys	Leu	Arg	Trp	Glu	Lys	Thr	Gln	Ser	Val	Asn	Val	Gly
				165					170					175	
Leu	Asp	Phe	Ser	Val	Leu	Asn	Gln	Ala	Leu	Asn	Leu	Ser	Val	Asp	Tyr
			180					185					190		
Tyr	Tyr	Arg	Lys	Gly	Thr	Asp	Leu	Phe	Arg	Ser	Ser	Asn	Asp	Ser	Thr
		195					200						205		

<210> 5544  
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 <212> PRT  
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<400> 5544

Thr	Tyr	Gly	Trp	Gln	His	Pro	Lys	Arg	Val	Gln	Thr	Ser	Gln	Ser	Phe
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Cys	Leu	Asn	Trp	Tyr	Arg	His	Ser	Met	Leu	Gln	Asp	Lys	Leu	Ser	Ala
			20					25					30		
Pro	Arg	His	Gln	Glu	Pro	Lys	Cys	Leu	Phe	Leu	Gln	Met	Arg	Gln	His
		35					40					45			
Leu	Thr	Ser	Asn	Lys	Glu	Ser	Leu	Phe	Gly	Ser	Lys	Pro	Thr	Ala	Gln
	50					55					60				
Arg	Phe	Val	Leu	Pro	Lys	Cys	Pro	Phe	Trp	Gln	Ala	Ile	Leu	Cys	Leu
65					70					75					80
Gln	Val	Leu	Ser	Tyr	Tyr	Leu	Ile	Leu	Leu	Ile	His	Ala	Gln	Lys	Tyr
			85						90					95	
Lys	Lys	Arg	Lys	Arg	Thr	Pro	Tyr	Lys	Thr	Arg	Lys	Lys	Thr	Ile	Phe
			100					105					110		
Thr	Asp	Asp	Lys	Phe	Glu	Leu	Leu	Met	Glu	Arg	Asp	Glu	Phe	Phe	Thr
		115					120					125			
Lys	Glu	Glu	Arg	Glu	Leu	Leu	Phe	Ser	Leu	Tyr	Lys	Lys	Leu	Leu	Arg
	130					135					140				
Leu	Thr	Gly	Glu	Thr	Leu	Gln	Lys	Gly	Asp	Cys	Arg	Lys	Leu	Lys	Lys
145					150					155					160
His	Leu	Ile	Asp	Ser	Thr	Gln	Asn	Asn	Thr	Met	Gln	Arg	Asp	Ser	Phe

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<211> 492
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Phe	Gly	Val	Pro	Ala 35	Leu	Leu	Leu	Phe	Leu 40	Leu	Val	Gly	Met	Leu	Phe
Gly	Ser	Asp	Gly	Leu 50	Gly	Leu	Gln	Phe	His 55	Asn	Ala 60	Lys	Ile	Ala	Gln
Phe 65	Ile	Gly	Met	Val 70	Ala	Leu	Ser	Val	Ile 75	Leu	Phe	Ser	Gly	Gly	Met 80
Asp	Thr	Lys	Phe	Lys 85	Glu	Ile	Arg	Pro	Ile 90	Leu	Ser	Pro	Gly	Ile	Val
Leu	Ser	Thr	Val	Gly 100	Val	Phe	Leu	Thr	Ala 105	Leu	Phe	Thr	Gly	Leu	Phe
Ile	Trp	Tyr	Leu	Ser 115	Gly	Met	Ser	Trp	Thr 120	Asn	Ile	His	Phe	Pro	Leu
Ile	Thr	Ser	Leu	Leu 130	Leu	Ala	Ser	Thr	Met 135	Ser	Ser	Thr	Asp	Ser	Ala
Ser 145	Val	Phe	Ala	Ile 150	Leu	Arg	Ser	Gln	Lys 155	Met	Asn	Leu	Lys	His	Asn
Leu	Arg	Pro	Met	Leu 165	Glu	Leu	Glu	Ser	Gly 170	Ser	Asn	Asp	Pro	Met	Ala
Tyr	Met	Leu	Thr	Ile 180	Val	Leu	Ile	Gln	Phe 185	Ile	Gln	Ser	Asp	Gly	Met

Gly Thr Gly Asn Ile Ile Gly Ser Phe Ile Ile Gln Phe Leu Val Gly  
 195 200 205  
 Ala Ala Ala Gly Tyr Ile Leu Gly Lys Leu Ala Ile Leu Ile Leu Asn  
 210 215 220  
 Lys Ile Asn Ile Asp Asn Gln Ser Leu Tyr Pro Ile Leu Leu Leu Ser  
 225 230 235 240  
 Phe Val Phe Phe Thr Phe Ala Ile Thr Asp Leu Leu Arg Gly Asn Gly  
 245 250 255  
 Tyr Leu Ala Val Tyr Ile Ala Gly Met Met Val Gly Asn His Lys Ile  
 260 265 270  
 Thr Phe Arg Lys Glu Ile Ala Thr Phe Met Asp Gly Leu Thr Trp Leu  
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 Phe Gln Ile Ile Met Phe Leu Met Leu Gly Leu Leu Val Asn Pro His  
 290 295 300  
 Glu Met Ile Glu Val Ala Val Val Ala Leu Leu Ile Gly Val Phe Met  
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 325 330 335  
 Arg Lys Ile Thr Leu Lys Ser Arg Leu Phe Val Ser Trp Val Gly Leu  
 340 345 350  
 Arg Gly Ala Val Pro Ile Ile Phe Ala Thr Tyr Pro Val Val Ala Asn  
 355 360 365  
 Val Glu Gly Ser Asn Met Ile Phe Asn Ile Val Phe Phe Ile Thr Ile  
 370 375 380  
 Val Ser Leu Ile Val Gln Gly Thr Ser Val Ser Phe Val Ala Arg Leu  
 385 390 395 400  
 Leu His Leu Ser Thr Pro Leu Glu Lys Thr Gly Asn Asp Phe Gly Val  
 405 410 415  
 Glu Leu Pro Glu Glu Ile Asp Thr Asp Leu Ser Asp Met Thr Ile Thr  
 420 425 430  
 Met Glu Met Leu Asn Glu Ala Asp Thr Leu Lys Asp Met Asn Leu Pro  
 435 440 445  
 Lys Gly Thr Leu Val Met Ile Val Lys Arg Gly Asp Glu Phe Leu Ile  
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 Ser Glu Lys Asn Lys Gln Glu Thr Val Lys Asn Glu  
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&lt;211&gt; 103

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5546

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 20 25 30  
 Ser Thr Ile Pro Gln Thr Gly Lys Phe Lys Ser Phe Gln Ile Leu Thr  
 35 40 45  
 Thr Leu Arg Leu Ile Arg Asp Glu Ala Gly Ser Phe Ile His Ile Phe  
 50 55 60  
 Arg Gln Ile Lys Phe Met Thr Leu Ile Ile Thr Tyr Gly Ala Asn Gln  
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 85 90 95  
 Arg Ile Ile His Ile Asp Leu  
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<222> (158)
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Ser	Ser	Phe	Ser	Ser	Gly	Ile	Arg	Asn	Leu	Gln	Arg	Asn	Gln	Lys	Asn
			20					25					30		
Met	Lys	Gln	Leu	Arg	Asn	Ile	Val	Ala	Gly	Met	Leu	Val	Leu	Ile	Gly
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Gly	Met	Leu	Pro	Ala	Thr	Thr	Phe	Ala	Gln	Glu	Pro	Val	Pro	Gly	Asp
	50					55					60				
Thr	Thr	Gly	Thr	Leu	Gln	His	Glu	Ile	Ile	Val	Gly	Lys	Asp	Thr	Ile
65					70					75				80	
Asn	Gln	Glu	Ala	Asn	Gln	Val	Asp	Val	Lys	Gly	Ile	Val	Phe	Gly	Pro
				85					90					95	
Ile	Gly	Asp	Ser	Tyr	Glu	Trp	His	Ile	Thr	Asn	Ile	Gly	Lys	Thr	Ser
			100					105					110		
Ile	Cys	Ile	Pro	Leu	Arg	Leu	Ile	Val	Tyr	Ser	Glu	Leu	Ser	Gly	Trp
		115					120					125			
His	Ala	Phe	Leu	Ser	Ser	Arg	Leu	Glu	Glu	Asn	Gly	Gly	Lys	Tyr	Glu
	130					135					140				
Gly	Phe	Tyr	Ile	Ala	Pro	Ala	Gly	Ser	Lys	Tyr	Glu	Gly	Xaa	Val	Val
145					150					155				160	
Glu	Arg	Asn	Ala	Thr	Gly	Glu	Glu	Val	Arg	Pro	Trp	Asp	Ile	Ser	Ile
				165					170					175	
Thr	Lys	Val	Thr	Leu	Ser	Leu	Phe	Ile	Asn	Ser	Ala	Ile	Leu	Leu	Ala
			180					185					190		
Ile	Ile	Leu	Ser	Val	Ala	His	Trp	Tyr	Arg	Lys	Arg	Glu	Gln	Gly	Ala
		195					200					205			
Tyr	Ala	Pro	Gly	Gly	Phe	Ile	Gly	Phe	Met	Glu	Met	Phe	Ile	Met	Met
	210				215					220					
Val	His	Asp	Asp	Val	Ile	Lys	Ser	Cys	Val	Gly	Pro	Asn	Tyr	Lys	Lys
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Phe	Ala	Pro	Tyr	Leu	Leu	Thr	Ala	Phe	Phe	Phe	Ile	Phe	Ile	Asn	Asn
				245					250					255	
Ile	Met	Gly	Leu	Ile	Pro	Ile	Phe	Pro	Gly	Gly	Ala	Asn	Val	Thr	Gly
			260				265						270		
Asn	Ile	Ala	Ile	Thr	Leu	Val	Leu	Ala	Leu	Phe	Thr	Phe	Val	Ile	Val
		275					280					285			
Asn	Ile	Phe	Gly	Thr	Lys	His	Tyr	Trp	Lys	Asp	Ile	Phe	Trp	Pro	Asp
	290					295					300				
Val	Pro	Trp	Trp	Leu	Lys	Val	Pro	Ile	Pro	Met	Met	Pro	Phe	Ile	Glu
305					310					315					320
Phe	Phe	Gly	Val	Phe	Thr	Lys	Pro	Phe	Ala	Leu	Met	Ile	Arg	Leu	Phe
				325					330					335	
Ala	Asn	Met	Leu	Ser	Gly	His	Met	Ala	Met	Leu	Val	Leu	Thr	Cys	Leu
			340					345					350		
Ile	Phe	Ile	Ser	Ala	Ser	Met	G								

[illegible]

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Val Ala Phe Ile Gln Ala Tyr Val Phe Thr Met Leu Ser Ala Val Phe		
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		415

&lt;210&gt; 5548

&lt;211&gt; 885

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5548

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			20					25					30		
Glu	Pro	Pro	Ala	Thr	Pro	Asp	Met	Gly	Trp	Phe	Leu	Lys	Lys	Lys	Lys
			35				40					45			
Lys	Ser	Asn	Pro	Gln	Asp	Ser	Ile	Lys	Val	Lys	Asn	Glu	Tyr	Glu	Lys
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Leu	Thr	Gly	Ser	Asp	Ser	Val	Val	Arg	Arg	Gly	Met	Phe	Asn	Val	Tyr
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Gln	Lys	Lys	Asn	Asp	Tyr	Tyr	Phe	Glu	Ile	Pro	Ser	Thr	Leu	Leu	Gly
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Arg	Asp	Met	Leu	Val	Val	Asn	Lys	Leu	Gln	Arg	Val	Pro	Ala	Glu	Leu
			100					105					110		
Asn	Glu	Ala	Gly	Val	Asn	Arg	Gly	Thr	Asn	Tyr	Glu	Asn	Gln	Met	Ile
		115					120					125			
Arg	Phe	Glu	Leu	Asp	Lys	Ser	Ala	Asn	Lys	Leu	Leu	Ile	Arg	Gln	Ser
	130					135					140				
Arg	Pro	Leu	Pro	Ile	Ser	Pro	Ser	Glu	Asp	Ala	Ile	Ser	Gln	Ser	Val
145					150				155						160
Lys	Asp	Asn	Tyr	Ile	Ser	Pro	Leu	Ile	Ala	Gly	Phe	Lys	Val	Glu	Ala
			165					170						175	
Tyr	Asn	Asn	Asp	Ser	Thr	Ser	Ile	Leu	Ile	Lys	Val	Asn	Asp	Ile	Tyr
			180				185						190		
Asp	Gly	Thr	Glu	Thr	Ser	Ile	Asn	Asn	Val	Phe	Thr	Asn	Ile	Asn	Leu
	195						200					205			
Gly	Thr	Ser	Ala	Ile	Lys	Asn	Leu	Ser	Arg	Ile	Leu	Ser	Ile	Lys	Ser
	210					215					220				
Phe	Asp	Asn	Asn	Val	Val	Ala	Thr	Ser	Glu	Leu	Thr	Thr	Arg	Val	Thr
225				230					235						240
Glu	Gly	Thr	Thr	Thr	Ile	Tyr	Val	Thr	Val	Glu	Val	Ser	Ser	Ser	Ile
			245					250					255		
Leu	Leu	Leu	Pro	Glu	Val	Pro	Met	Thr	Gly	Arg	Leu	Asp	Asn	Pro	Arg
			260				265						270		
Val	Gly	Tyr	Phe	Thr	Asn	Pro	Leu	Thr	Asn	Phe	Ser	Asp	Gly	Gln	Gln
	275						280					285			
Arg	Val	Asn	Lys	Lys	Gln	Phe	Ile	Thr	Arg	Trp	Arg	Leu	Glu	Pro	Arg
	290					295					300				
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Lys	Pro	Ile	Val	Phe	Tyr	Ile	Glu	Asn	Ser	Thr	Pro	Tyr	Arg	Trp	Arg
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Lys	Tyr	Ile	Lys	Gln	Gly	Ile	Glu	Asp	Trp	Gln	Val	Ala	Phe	Glu	Arg
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Ala	Gly	Phe	Lys	Asn	Ala	Ile	Ile	Ala	Lys	Asp	Ile	Thr	Glu	Asp	Met
	355						360					365			
Glu	Val	Asp	Met	Asp	Asp	Val	Asn	Tyr	Ser	Val	Leu	Thr	Tyr	Ala	Ala

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Arg Phe Asn Tyr Val	Ala Gln Pro Gly	Asp Gly Ile Lys	Ala Leu Ser		
	500		505		510
Pro His Ile Gly Pro	Tyr Asp Met Phe	Ala Ile Glu Tyr	Gly Tyr Arg		
	515		520		525
Trp Tyr Gly Lys Gln	Thr Pro Glu Glu	Glu Lys Glu Leu	Leu Gln Asp		
	530		535		540
Phe Leu Ala Lys His	Thr Asp Arg Leu	Tyr Lys Tyr Ser	Glu Ala Gln		
	545		550		555
Asp Pro Arg Asp Ala	Val Asp Pro Arg	Ala Gln Asn Glu	Asp Leu Gly		
	565		570		575
Asp Asp Pro Ile Arg	Ser Ser Gln Tyr	Gly Ile Ala Asn	Leu Lys Cys		
	580		585		590
Ile Val Pro Gln Ile	Ile Gln Trp Thr	Thr Thr Gly Glu	Lys Gly Gln		
	595		600		605
Thr Tyr Glu Glu Ala	Ser Arg Leu Tyr	Tyr Tyr Ala Val	Ile Asn Gln	Trp	
	610		615		620
Asn Asn Tyr Leu Tyr	His Val Met Ala	Asn Ile Gly Gly	Ile Tyr Ile		
	625		630		635
Glu Asn Thr Thr Val	Gly Asp Gly Glu	Lys Thr Tyr Thr	Phe Val Glu		
	645		650		655
Lys Glu Lys Gln Gln	Ala Ala Leu Arg	Phe Leu Leu Asp	Glu Val Leu		
	660		665		670
Cys Tyr Pro Lys Trp	Leu Phe Asp Pro	Glu Ile Ala Gln	Tyr Thr Tyr		
	675		680		685
Leu Leu Lys Asn Thr	Pro Leu Gly Val	Val Glu Asn Ala	Pro Thr Gln		
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Val Leu Lys Asn Ala	Gln Ala Tyr Val	Phe Trp Asp Leu	Leu Ser Asn		
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Asn Arg Leu Met Arg	Met Leu Glu Asn	Glu Ser Val Asn	Gly Lys Lys		
	725		730		735
Ala Phe Thr Ala Val	Glu Leu Met Asp	Gly Leu His Lys	Ser Ile Phe		
	740		745		750
Ala Val Thr Glu Arg	Gly Gly Leu Pro	Asp Val Met Thr	Arg Asn Leu		
	755		760		765
Gln Lys Gly Phe Val	Asp Ala Leu Ile	Thr Ala Ala Glu	Ser Glu		
	770		775		780
Gly Val Lys Val Asn	Lys Lys Leu Ile	Asp Asn His Phe	Leu Phe Asp		
	785		790		795
Phe Gln Thr Pro Ile	Cys Ser Cys Asp	Asp His Ala His	Arg Ser Ala		
	805		810		815
His Thr Asp Arg Met	Gly Ala Arg Arg	Glu Leu Asn Phe	Tyr Gly Ser		
	820		825		830
Gln Ile Asn Arg Ile	Ser Asp Ala Ile	Ser Val Lys Arg	Gly Glu Leu		
	835		840		845

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 Leu Gly Ile Ser Lys  
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 Leu Gly Leu Leu Val Gly Ile Leu Leu Phe Ala Arg Val Ala Phe Glu  
 35 40 45  
 Leu Asn Tyr Asp Ser Tyr Tyr Gln Glu Pro Glu Asn Leu Phe Leu Thr  
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 65 70 75 80  
 Asn Tyr Gly Lys Leu Pro Ala Ala Ile Arg Glu Asn Phe Pro Asp Glu  
 85 90 95  
 Val Glu Asp Ala Thr Leu Ile Asp Leu Phe Ser Arg Ser Ser Leu Tyr  
 100 105 110  
 His Glu Gly Gln Glu Lys Lys Asp Ala Ile Leu Ala Thr Ser Arg Ser  
 115 120 125  
 His Ile Phe Ser Thr Leu Gly Val Lys Val Leu Ser Gly Asn Val Ser  
 130 135 140  
 Glu Leu Asp Asn Met Asp Ala Leu Phe Ile Ser Arg Ser Leu Ala Gln  
 145 150 155 160  
 Ser Leu Phe Ala Asp Ala Asp Pro Ile Gly Lys Thr Val Met Ile Asn  
 165 170 175  
 Ile Asp Tyr Pro Leu Thr Val Arg Gly Val Phe Glu Asp Ile Pro Glu  
 180 185 190  
 Asn Ala Glu Phe Arg Phe Asp Gly Val Tyr Ser Phe Val Thr Arg Ala  
 195 200 205  
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 210 215 220  
 Thr Cys Met Val Arg Phe Arg His Pro Glu Asp Val Glu Lys Val Ala  
 225 230 235 240  
 Ala Arg Met Pro Asp Met Leu Lys Lys Tyr Ile Gln Tyr Asn Lys Asp  
 245 250 255  
 Trp Phe Glu Glu Phe Ser Phe Ile Thr Pro Ser Gln Phe His Leu Gln  
 260 265 270  
 Lys Lys Glu Ser Arg Lys Ile Ile Ser Ile Leu Ser Ile Leu Gly Phe  
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<210> 5550  
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 <213> B.fragilis



[illegible]

<400> 5552

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			20					25					30		
Ser	Ser	Glu	Asp	Asn	Met	Pro	Leu	Ile	Gly	Ala	Ser	Val	Tyr	Ile	Lys
		35					40					45			
Ala	Glu	Asp	Leu	Ser	Lys	Asp	Gly	Asn	Ser	Pro	Thr	Ile	Thr	Gly	Val
	50					55					60				
Ile	Thr	Asp	Ile	Asp	Gly	Lys	Phe	Asn	Ile	Ser	Val	Pro	Glu	Gly	Val
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Thr	Arg	Leu	Phe	Cys	Ser	Tyr	Val	Gly	His	Glu	Val	Gln	Glu	Leu	Lys
				85					90					95	
Leu	Val	Pro	Gly	Lys	Asp	Gln	Tyr	Glu	Ile	Thr	Leu	Phe	Pro	Ser	Ala
			100					105					110		
Gln	Met	Leu	Asp	Ala	Val	Val	Val	Thr	Gly	Tyr	Gln	Thr	Val	Glu	Arg
		115					120					125			
Arg	Lys	Leu	Thr	Ala	Ala	Val	Gly	Lys	Leu	Asn	Ile	Ser	Asp	Glu	Thr
	130					135					140				
Ile	Gly	Ala	Val	Lys	Ser	Ile	Asp	Gln	Ala	Leu	Ala	Gly	Gln	Ile	Ala
145				150						155				160	
Gly	Leu	Ser	Val	Thr	Ser	Thr	Ser	Gly	Ala	Pro	Gly	Ala	Pro	Ala	Lys

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Ile	Arg	Ile	Arg	Gly	Thr	Ser	Ser	Leu	Asn	Gly	Thr	Gln	Asp	Pro	Leu
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Trp	Val	Leu	Asp	Gly	Ile	Pro	Leu	Glu	Gly	Thr	Asp	Val	Pro	Gln	Ser
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Asn	Val	Leu	Asn	Asp	Val	Ser	Asn	Ile	Gln	Gln	Ser	Ser	Ile	Ala	Gly
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Ala	Thr	Ala	Ile	Tyr	Gly	Ala	Arg	Ala	Ala	Asn	Gly	Val	Ile	Val	Ile
				245				250					255		
Thr	Thr	Lys	Lys	Gly	Lys	Val	Gly	Lys	Pro	Val	Ile	Asn	Phe	Ser	Ser
				260				265					270		
Lys	Phe	Thr	Tyr	Met	Pro	Thr	Leu	Ser	Thr	Asn	Arg	Leu	Asn	Met	Leu
				275				280				285			
Asn	Ser	Gln	Glu	Lys	Val	Asp	Leu	Glu	Leu	Glu	Leu	Leu	Arg	Ser	Asn
				290				295				300			
Phe	Ala	Tyr	Gly	Asp	Asn	Lys	Gly	Gly	Val	Ser	Lys	Ile	Ile	Ser	Gly
				305				310				315			320
Tyr	Gly	Leu	Thr	Asp	Ala	Tyr	Lys	Lys	Gly	Gly	Trp	Ser	Ala	Leu	Thr
				325				330						335	
Pro	Glu	Ala	Gln	Thr	Asp	Ile	Ser	Arg	Leu	Arg	Asn	Thr	Glu	Thr	Asp
				340				345					350		
Trp	Gly	Asp	Ile	Leu	Phe	Arg	Asp	Ala	Phe	Asn	Gln	Glu	Tyr	Ser	Leu
				355				360				365			
Ser	Leu	Ser	Gly	Gly	Asn	Glu	Arg	Val	Thr	Tyr	Tyr	Thr	Ser	Ile	Gly
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Tyr	Tyr	Gln	Glu	Asn	Gly	Asn	Val	Lys	Gly	Val	Gly	Leu	Asp	Arg	Leu
				385				390				395			400
Asn	Ile	Val	Ala	Lys	Thr	Ser	Tyr	Lys	Val	Asn	Arg	Met	Leu	Lys	Phe
				405				410					415		
Gly	Val	Ser	Leu	Phe	Val	Asn	Arg	Arg	Asn	Asn	Lys	Thr	Tyr	Leu	Thr
				420				425					430		
Asp	Thr	Tyr	Gly	Leu	Val	Asn	Pro	Val	Tyr	Tyr	Ser	Arg	Lys	Ala	Asn
				435				440				445			
Pro	Tyr	Tyr	Gln	Pro	Phe	Asp	Val	Asn	Gly	Asn	Tyr	Val	Tyr	Asp	Phe
				450				455				460			
Asp	Val	Gln	Asn	Asn	Ser	Asp	Thr	Asp	Leu	Gly	Phe	Asn	Ile	Phe	Glu
				465				470				475			480
Glu	Arg	Lys	Asn	Thr	Ser	Asn	Glu	Glu	Thr	Ile	Asn	Ala	Leu	Ser	Ser
				485				490					495		
Ile	Phe	Asp	Ala	Glu	Leu	Arg	Phe	Asn	Asp	Lys	Leu	Lys	Phe	Thr	Thr
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Gln	Leu	Gly	Leu	Gln	Leu	Asp	Lys	Ala	Ser	Lys	Glu	Gln	Ile	Ala	Asp
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Asp	Ser	Ala	Ser	Gln	Ser	Asn	Lys	Tyr	Phe	Ile	Pro	Asp	Gly	Gly	Val
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His	Lys	Ala	Tyr	Glu	Asn	Thr	Asn	Ser	Gln	Ile	Thr	Trp	Lys	Ala	Met
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Gly	Glu	Tyr	Arg	Asp	Ser	Phe	Asn	Asp	Ile	His	Glu	Leu	Glu	Val	Met
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Val	Gly	Thr	Glu	Leu	Arg	Lys	His	Leu	Val						
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&lt;211&gt; 530

&lt;212&gt; PRT





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 465 470 475 480  
 Ser Lys Ser Gly Lys Asp Leu Lys Ala Leu Glu Leu Pro Gly Leu Trp  
 485 490 495  
 Asn Gly Ala Met Ser Asp Trp Ser Thr Val Phe Val Glu Val Pro Leu  
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 His Gln  
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&lt;211&gt; 864

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5554

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 Val Ile Glu Asn Thr Gly Thr His Leu Phe Leu Thr Gly Lys Ala Gly  
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 Thr Gly Lys Thr Thr Phe Leu Arg Arg Leu Lys Glu Leu Thr Pro Lys  
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 Arg Met Val Val Val Ala Pro Thr Gly Ile Ala Ala Ile Asn Ala Gly  
 65 70 75 80  
 Gly Val Thr Ile His Ser Phe Phe Gln Leu Asn Phe Ala Pro Tyr Ile  
 85 90 95  
 Pro Glu Ser Thr Phe Asn Ser Ala Gln Gln Gly Phe His Lys Phe Gly  
 100 105 110  
 Lys Glu Lys Ile Asn Ile Ile Arg Ser Met Asp Leu Leu Val Ile Asp  
 115 120 125  
 Glu Ile Ser Met Val Arg Ala Asp Gln Leu Asp Ala Ile Asp Ala Val  
 130 135 140  
 Leu Arg Arg Tyr Arg Asp Arg Ser Lys Pro Phe Gly Gly Val Gln Leu  
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 Asp Trp Ser Leu Leu Ser Ser Tyr Tyr Asp Thr Ala Phe Phe Phe Gly  
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 Ser His Ser Leu Lys Glu Thr Glu Tyr Ile Thr Ile Glu Leu Lys Lys  
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 Val Tyr Arg Gln Ser Asp Thr Glu Phe Val Gly Leu Leu Asn Lys Ile  
 210 215 220  
 Arg Glu Lys Glu Ala Asp Asp Ala Val Leu Glu Glu Leu Asn Lys Arg  
 225 230 235 240  
 Tyr Leu Pro Gly Phe Arg Pro Arg Glu Glu Glu Gly Tyr Ile Arg Leu  
 245 250 255  
 Thr Thr His Asn Tyr Gln Ala Gln Gln Tyr Asn Asp Arg Gln Leu Leu  
 260 265 270  
 Ser Leu Ser Gly Arg Ala Phe Ser Phe Gln Ala Lys Val Glu Gly Thr  
 275 280 285  
 Phe Pro Glu Ser Ala Tyr Pro Ala Asp Glu Met Leu Thr Val Lys Glu  
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 Gly Ala Gln Ile Met Phe Ile Lys Asn Asp Ser Ser Gly Glu His Arg  
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Tyr Tyr Asn Gly Met Ile Gly Leu Val Thr Ala Val Ser Lys Asp Gly  
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 Arg Asn Ala Gly Glu Met Thr Pro Asp Lys His Lys Leu Ala Leu Leu  
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 580 585 590  
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 595 600 605  
 Glu Gly Phe Ser Val Ser Ala Phe Leu Lys Gln Lys Ala Val Leu Thr  
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 Leu Ser Val Ser Gly Gly Glu Ala Ala Ser Ser Ser Gly Arg Ser Glu  
 625 630 635 640  
 Arg Lys Ser Arg Thr Ala Glu Lys Ile Glu Val Pro Thr Asp Ile Leu  
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 His Pro Glu Leu Tyr Lys Gln Leu Ile Ala Trp Arg Asn Ser Glu Ala  
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 Ala Lys Ala Gly Leu Pro Val Tyr Thr Ile Ile Gln Gln Lys Ala Ile  
 675 680 685  
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 Ile Pro Tyr Phe Gly Lys Arg Gly Ala Glu Lys Tyr Gly Asp Ala Leu  
 705 710 715 720  
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 Gln Met Pro Thr Ala Thr Leu Thr Val Asn Asn Gly Ile Lys Thr Ser  
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Leu	Val	Ala	Arg	Glu	Lys	Ile	Thr	Lys	Ile	Ile	Arg	Tyr	Val	Gln	Ala
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His	Gly	Ser	Asp	Lys	Gly	Leu	Thr	Val	Ile	Lys	Ala	Ala	Leu	Gly	Asp
		835					840					845			
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<400> 5555

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Thr	Leu	Gln	Ser	Ile	Leu	Lys	Asp	Arg	Met	Gln	Val	Asp	Ile	Pro	Leu
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Ser	Gly	Ser	Arg	Gln	Ser	Pro	Ile	Arg	Leu	Ile	Ile	Asp	Pro	Gln	Leu
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Glu	Gly	Lys	Glu	His	Tyr	Gln	Leu	Lys	Val	Asp	Gln	Lys	Gly	Met	Thr
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Ile	Ser	Gly	Ala	Ser	Ala	Ala	Ala	Val	Phe	Tyr	Gly	Val	Met	Thr	Val
		115					120					125			
Asp	Gln	Val	Leu	Leu	Gly	Asp	Val	Cys	Ser	Ser	Asn	Arg	Lys	Glu	Met
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Thr	Pro	Ile	Ser	Ile	Asp	Asp	Ala	Pro	Arg	Phe	Gly	Tyr	Arg	Ala	Leu
145					150					155					160
Met	Leu	Asp	Pro	Ala	Arg	His	Phe	Leu	Pro	Ile	Glu	Asp	Val	Lys	Phe
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Tyr	Ile	Asp	Gln	Met	Val	Arg	Tyr	Lys	Tyr	Asn	Val	Leu	Gln	Leu	His
		180						185					190		
Leu	Thr	Asp	Asp	Gln	Gly	Trp	Arg	Ile	Glu	Ile	Arg	Lys	His	Pro	Lys
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Leu	Thr	Ala	Gly	Gln	Ser	Phe	Tyr	Thr	Gln	Glu	Glu	Leu	Ala	Asp	Leu
		210				215					220				
Ile	Arg	Tyr	Ala	Ala	Glu	Arg	His	Val	Glu	Ile	Val	Pro	Glu	Leu	Asp
225					230					235					240
Ile	Pro	Gly	His	Thr	Val	Ala	Val	Leu	Ala	Ala	Tyr	Pro	Glu	Leu	Gly
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Cys	Thr	His	Thr	Asp	Thr	Ile	Ala	Lys	Asn	Val	Gly	Glu	Thr	Val	Asn
			260					265					270		
Leu	Met	Leu	Cys	Ala	Asn	Asn	Glu	Lys	Val	Tyr	Glu	Val	Tyr	Asn	Asp
		275					280					285			
Ile	Ile	Asp	Glu	Val	Ser	Ala	Leu	Phe	Pro	Ser	Arg	Tyr	Ile	His	Leu
	290					295					300				
Gly	Gly	Asp	Glu	Ala	Val	Ile	Glu	Lys	Asn	Trp	Thr	Lys	Cys	Glu	Arg
305					310					315					320
Cys	Gln	Lys	Met	Met	Lys	Glu	Leu	Lys	Tyr	Glu	Lys	Ala	Ser	Gln	Leu
				325				330						335	
Met	Ile	Pro	Phe	Phe	Ser	Arg	Met	Leu	Ser	Phe	Val	Glu	Ala	Asp	Gly

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Cys	Leu	Asp	Asn 35	Phe	Phe	Thr	Gly 40	Ser	Lys	Glu	Asn 45	Ile	Ile	His	Leu
Met	Asp	Asn	His 50	His	Phe	Glu 55	Val	Val	Arg	His	Asp 60	Ile	Thr	Phe	Pro
Tyr 65	Ser	Ala	Glu	Val	Asp 70	Glu	Ile	Tyr	Asn 75	Leu	Ala	Cys	Pro	Ala	Ser 80
Pro	Ile	His	Tyr 85	Gln	Tyr	Asp	Ala	Ile	Gln 90	Thr	Ile	Lys	Thr	Ser 95	Val
Met	Gly	Ala	Ile 100	Asn	Met	Leu	Gly 105	Leu	Ala	Arg	Arg	Leu	Asn	Ala	Lys
Ile	Leu	Gln 115	Ala	Ser	Thr	Ser	Glu 120	Val	Tyr	Gly	Asp 125	Pro	Glu	Val	His
Pro	Gln 130	Pro	Glu	Ser	Tyr	Trp 135	Gly	Asn	Val	Asn 140	Pro	Ile	Gly	Ile	Arg
Ser 145	Cys	Tyr	Asp	Glu	Gly 150	Lys	Arg	Cys	Ser	Glu 155	Thr	Leu	Phe	Met	Asp 160
Tyr	His	Arg	Gln 165	Asn	Asn	Val	Arg	Ile	Lys 170	Ile	Val	Arg	Ile	Phe	Asn
Thr	Tyr	Gly	Pro 180	Arg	Met	Leu	Pro 185	Asn	Asp	Gly	Arg	Val	Val	Ser	Asn
Phe	Leu	Ile 195	Gln	Ala	Leu	Lys	Asn 200	Asp	Asp	Ile	Thr 205	Ile	Tyr	Gly	Thr
Gly	Glu 210	Gln	Thr	Arg	Ser	Phe 215	Gln	Tyr	Ile	Asp 220	Asp	Leu	Val	Glu	Gly
Met	Ile	Arg	Met	Met	Asn	Thr	Gly	Asp	Asp	Phe	Ile	Gly	Pro	Ile	Asn

225		230		235		240
Leu Gly Asn Pro Asn Glu Phe Ser Met	Leu Gln Leu Ala Glu Lys Ile					
	245		250		255	
Ile Gln Lys Thr Gly Ser Lys Ser Lys	Ile Thr Phe Lys Pro Leu Pro					
	260		265		270	
His Asp Asp Pro Gln Gln Arg Lys Pro	Asp Ile Arg Leu Ala Gln Glu					
	275		280		285	
Lys Leu Gly Trp Gln Pro Thr Ile Leu	Leu Asp Glu Gly Leu Asp Arg					
	290		295		300	
Met Ile Asp Tyr Phe Lys Met Lys Tyr	Lys Leu					
	305		310		315	

<210> 5557  
 <211> 124  
 <212> PRT  
 <213> B.fragilis

<400> 5557															
Phe Cys Asp Ile Ser Arg Lys Ala Cys Phe Leu Cys Gln Thr Pro Lys															
1		5		10		15									
Ala Ile Thr Met Asp Leu Glu Lys Val Leu Ile Arg Glu Ile Asn Asn															
	20		25		30										
Asp Ser Arg Ile Phe Leu Tyr Lys Glu Gly Asp Cys Trp Ser Ala His															
	35		40		45										
Asp Asn Ser Ala Arg His Leu Cys Phe Leu Tyr Ser Gln Phe Asn Ala															
	50		55		60										
Tyr Asp Arg Ile Tyr Gln Ala Tyr Glu Ile Val Leu Lys Cys Val Met															
	65		70		75										
Leu Ser Asn Ala Met Ile Glu Lys Phe Ile Glu His Thr Leu Val Ser															
	85		90		95										
Thr Val His Glu Asp Glu Ile Glu Ile Cys Ile Pro Lys Glu Lys Arg															
	100		105		110										
Ala Glu Phe Glu Ser Trp Arg Ser Thr Ser Gly Val															
	115		120												

<210> 5558  
 <211> 459  
 <212> PRT  
 <213> B.fragilis

<400> 5558															
Leu Ile Arg Met Asp Trp Lys Ile Arg Asn Ile Arg Leu Gln Glu Leu															
1		5		10		15									
Arg Glu Ile Tyr Gln Glu Lys Leu Lys Asn Ile Ala Tyr Arg Val Tyr															
	20		25		30										
Glu Ser His Phe Gln Asn Gly Ile Val Lys Gln Glu Glu Leu Glu Gly															
	35		40		45										
Glu Ile Met Ser Tyr Tyr Gln His Thr Gln Pro Ser Leu Gln Glu Phe															
	50		55		60										
Tyr Ser His Tyr Ala Thr Gln Trp Glu His Phe Tyr Glu Gly His Glu															
	65		70		75										
Leu Thr Asp Ser Ala Phe Leu Arg Phe Leu Glu Asn Ser Ala Tyr Pro															
	85		90		95										
Leu Gln Met Lys Tyr Asn Arg Gly Asp Leu Asn Leu Gln Tyr Tyr Ile															
	100		105		110										
Asp Arg Phe His Thr Leu Lys Lys Arg Ser Lys Glu Trp Lys His Leu															
	115		120		125										
Arg Asn Leu Phe Phe Asp Lys Trp Tyr His Leu Leu Ala Asn Asn Glu															
	130		135		140										

2345

Tyr Asn Tyr Gln Ile Glu Arg Ile Asn Asn Leu Cys Glu Arg Phe Tyr  
 145 150 155 160  
 Arg Leu Gln Lys Asn Ile Ala Asp Gln Leu Pro Gln Arg Gly Asn Ala  
 165 170 175  
 Arg Leu Met Trp Leu Leu Arg Thr His Gln Glu Leu Ala Lys Gln Leu  
 180 185 190  
 Phe His Tyr Asp Glu Ile Ala Lys Asn His Pro Ala Ile Arg Glu Leu  
 195 200 205  
 Thr Lys Ile Leu Gly Lys Gln His Tyr Gly Lys Glu Lys Lys Phe Arg  
 210 215 220  
 Met Val Ala Gly Ile His Arg Glu Gln Ile Ile Thr His Ala Thr Lys  
 225 230 235 240  
 Ser Asp Ile Thr Gly Val Cys Glu Gly Asn Asp Leu Asn Ser Leu Leu  
 245 250 255  
 Pro Ile Glu Tyr Cys Tyr Leu Ser Asp Pro Ala Leu Gln Pro Leu Phe  
 260 265 270  
 Phe Glu Arg Phe Asn Lys Lys Lys Leu Gln Met Met Asp Tyr Glu Ser  
 275 280 285  
 Lys Asp Gln His Arg Ile Lys Asp Ile Lys Ile Gln Gly Asn Glu Ile  
 290 295 300  
 Val Glu Glu Gln Ser Gly Pro Phe Ile Ile Cys Val Asp Thr Ser Gly  
 305 310 315 320  
 Ser Met Ser Gly Glu Arg Glu Glu Phe Val Lys Ser Ala Ile Leu Ala  
 325 330 335  
 Ile Ala Glu Leu Thr Glu Gln Gln Asp Arg Lys Cys Tyr Leu Ile Asn  
 340 345 350  
 Phe Ser Asn Asp Ile Ala Cys Ile Glu Ile Glu Arg Leu Gly Gln Asn  
 355 360 365  
 Ile Gln Glu Leu Ala Asn Phe Leu Cys Gln Ser Phe His Gly Gly Thr  
 370 375 380  
 Asp Leu Thr Pro Ala Leu Leu His Ala Ile His Ile Leu Lys Thr Lys  
 385 390 395 400  
 Ser Tyr Arg Asn Ala Asp Leu Val Met Met Ser Asp Phe Glu Met Pro  
 405 410 415  
 Pro Leu Asn Glu Glu Leu Ser Glu Glu Ile Lys Lys Ile Lys Gln Asn  
 420 425 430  
 Lys Thr His Leu Tyr Ala Leu Ser Val His Lys Gln Ser Glu Asn Thr  
 435 440 445  
 Tyr Leu Asn Val Cys Asn Lys Phe Trp Phe Val  
 450 455

&lt;210&gt; 5559

&lt;211&gt; 547

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5559

Tyr Val Lys Ile Met Ser Met Phe Cys Phe Gln Cys Gln Glu Thr Ala  
 1 5 10 15  
 Lys Gly Thr Gly Cys Ile Leu Ser Gly Val Cys Gly Lys Thr Pro Glu  
 20 25 30  
 Val Ala Asn Met Gln Asp Leu Leu Phe Val Val Arg Gly Ile Ala  
 35 40 45  
 Val Tyr Asn Gln Ala Leu Arg Lys Asp Gly Arg Ser Ser Ala Arg Ala  
 50 55 60  
 Asp Lys Phe Ile Phe Asp Ala Leu Phe Thr Thr Ile Thr Asn Ala Asn  
 65 70 75 80  
 Phe Asp Lys His Ser Ile Ile Glu Lys Ile Lys Lys Gly Leu Glu Leu  
 85 90 95

Lys Lys Asp Leu Ser Asn Gln Val Thr Ile Glu His Ala Pro Asp Glu  
 100 105 110  
 Cys Thr Trp Tyr Gly Asp Glu Thr Glu Phe Glu Glu Lys Ala Gln Thr  
 115 120 125  
 Val Gly Val Leu Arg Thr Ser Asp Glu Asp Ile Arg Ser Leu Lys Glu  
 130 135 140  
 Leu Val His Tyr Gly Ile Lys Gly Met Ala Ala Tyr Val Glu His Ala  
 145 150 155 160  
 Tyr Asn Leu Gly Tyr Glu Asn Pro Glu Ile Phe Ala Phe Met Gln Tyr  
 165 170 175  
 Ala Leu Ala Glu Leu Thr Arg Glu Asp Ile Thr Val Asp Glu Leu Ile  
 180 185 190  
 Thr Leu Thr Leu Ala Thr Gly Asn His Gly Val Gln Ala Met Ala Gln  
 195 200 205  
 Leu Asp Thr Ala Asn Thr Ser His Tyr Gly Asn Pro Glu Ile Ser Glu  
 210 215 220  
 Val Asn Ile Gly Val Arg Asn Asn Pro Gly Ile Leu Val Ser Gly His  
 225 230 235 240  
 Asp Leu Lys Asp Ile Glu Glu Leu Leu Gln Gln Thr Glu Gly Thr Gly  
 245 250 255  
 Ile Asp Ile Tyr Thr His Ser Glu Met Leu Pro Ala His Tyr Tyr Pro  
 260 265 270  
 Gln Leu Lys Lys Tyr Lys His Leu Val Gly Asn Tyr Gly Asn Ala Trp  
 275 280 285  
 Trp Lys Gln Lys Glu Glu Phe Glu Ser Phe Asn Gly Pro Ile Leu Phe  
 290 295 300  
 Thr Thr Asn Cys Ile Val Pro Pro Arg Pro Asn Ala Thr Tyr Lys Asp  
 305 310 315 320  
 Arg Ile Tyr Thr Thr Gly Ala Thr Gly Leu Glu Gly Ala Thr Tyr Ile  
 325 330 335  
 Pro Glu Arg Lys Asp Gly Lys Gln Lys Asp Phe Ser Val Ile Ile Glu  
 340 345 350  
 His Ala Arg Arg Cys Gln Pro Pro Val Ala Ile Glu Ser Gly Lys Ile  
 355 360 365  
 Val Gly Gly Phe Ala His Ala Gln Val Ile Ala Leu Ala Asp Lys Val  
 370 375 380  
 Val Glu Ala Val Lys Ser Gly Ala Ile Arg Lys Phe Phe Val Met Ala  
 385 390 395 400  
 Gly Cys Asp Gly Arg Met Lys Ser Arg Ser Tyr Tyr Thr Glu Phe Ala  
 405 410 415  
 Glu Lys Leu Pro Ala Asp Thr Val Ile Leu Thr Ala Gly Cys Ala Lys  
 420 425 430  
 Tyr Arg Tyr Asn Lys Leu Pro Leu Gly Asp Ile Asn Gly Ile Pro Arg  
 435 440 445  
 Val Leu Asp Ala Gly Gln Cys Asn Asp Ser Tyr Ser Leu Ala Ile Ile  
 450 455 460  
 Ala Met Lys Leu Gln Glu Val Phe Gly Leu Lys Asp Ile Asn Asp Leu  
 465 470 475 480  
 Pro Ile Val Tyr Asn Ile Ala Trp Tyr Glu Gln Lys Ala Val Ile Val  
 485 490 495  
 Leu Leu Ala Leu Leu Ala Leu Gly Val Lys Lys Ile His Leu Gly Pro  
 500 505 510  
 Thr Leu Pro Ala Phe Leu Ser Pro Asn Val Lys Gln Val Leu Ile Asp  
 515 520 525  
 Asn Phe Gly Ile Gly Gly Ile Ser Thr Ala Asp Glu Asp Ile Ala Lys  
 530 535 540  
 Phe Leu Ala  
 545

<210> 5560  
 <211> 169  
 <212> PRT  
 <213> B.fragilis

<400> 5560

Thr	Lys	Lys	Ile	Met	Ser	Leu	Leu	Leu	Pro	Asp	Ser	Gly	Leu	Ile	Phe
1				5					10					15	
Trp	Met	Leu	Leu	Ser	Phe	Gly	Ile	Val	Phe	Ala	Val	Leu	Ala	Lys	Tyr
		20						25					30		
Gly	Phe	Pro	Val	Ile	Ile	Lys	Met	Val	Glu	Gly	Arg	Lys	Thr	Tyr	Ile
		35				40						45			
Asp	Glu	Ser	Leu	Glu	Val	Ala	Arg	Glu	Ala	Asn	Ala	Gln	Leu	Ser	Arg
	50					55					60				
Leu	Lys	Glu	Glu	Gly	Glu	Ala	Ile	Val	Ala	Ala	Ala	Asn	Lys	Glu	Gln
65					70				75					80	
Gly	Arg	Ile	Met	Lys	Glu	Ala	Met	Gln	Glu	Arg	Glu	Lys	Ile	Ile	Tyr
			85					90					95		
Glu	Ala	Arg	Lys	Gln	Ala	Glu	Ile	Ala	Ala	Gln	Lys	Glu	Leu	Asp	Glu
			100					105					110		
Val	Lys	Arg	Gln	Ile	Gln	Ile	Glu	Lys	Asp	Glu	Ala	Ile	Arg	Asp	Ile
		115				120						125			
Arg	Arg	Gln	Val	Ala	Leu	Leu	Ser	Val	Asp	Ile	Ala	Glu	Lys	Val	Ile
	130					135					140				
Arg	Lys	Asn	Leu	Asp	Asp	Lys	Gln	Glu	Gln	Met	Gly	Met	Ile	Asp	Arg
145				150						155				160	
Met	Leu	Asp	Glu	Val	Leu	Thr	Lys	Asn							
				165											

<210> 5561  
 <211> 189  
 <212> PRT  
 <213> B.fragilis

<400> 5561

Gln	Lys	Lys	Met	Glu	Val	Gly	Ile	Ile	Ser	Met	Arg	Tyr	Ala	Lys	Ala
1			5						10					15	
Leu	Met	Ala	Tyr	Ala	Glu	Glu	Arg	Gly	Ala	Glu	Glu	Arg	Leu	Tyr	His
		20						25					30		
Glu	Leu	Val	Thr	Leu	Ala	His	Ser	Phe	Arg	Thr	Val	Lys	Gly	Phe	Cys
		35				40						45			
Ala	Val	Leu	Asp	Asn	Pro	Ile	Val	Ser	Val	Asn	Glu	Lys	Phe	Asn	Leu
	50					55					60				
Ile	Cys	Thr	Ala	Ala	Asp	Gly	Asp	His	Lys	Pro	Ser	Glu	Glu	Phe	Ile
65				70					75					80	
Arg	Phe	Ile	Arg	Leu	Val	Leu	Lys	Glu	Arg	Arg	Glu	Thr	Tyr	Leu	Gln
			85					90					95		
Phe	Met	Ser	Leu	Met	Tyr	Leu	Asp	Leu	Tyr	Arg	Lys	Lys	Lys	His	Ile
			100					105					110		
Gly	Val	Gly	Lys	Leu	Ile	Thr	Ala	Val	Pro	Val	Asp	Lys	Ala	Thr	Glu
		115				120						125			
Glu	Arg	Ile	Arg	Gln	Thr	Ala	Ala	His	Ile	Leu	His	Ala	Tyr	Met	Glu
	130					135					140				
Leu	Glu	Thr	Val	Val	Asp	Pro	Ser	Ile	Glu	Gly	Gly	Phe	Val	Phe	Asp
145				150					155					160	
Ile	Asn	Asp	Tyr	Arg	Leu	Asp	Ala	Ser	Ile	Ala	Thr	Gln	Leu	Lys	Lys
			165					170					175		
Val	Lys	Gln	Gln	Phe	Ile	Asp	Lys	Asn	Arg	Arg	Ile	Val			
			180					185							



[illegible]

Thr 1	Met	Tyr	Leu	Ile 5	Ser	Ile	Ser	Ser	Leu 10	Ala	Gln	Arg	Ala	Lys 15	Ser
Val	Gly	Ile	His	Lys	Cys	Asn	Gly	Ala	Ser	Asp	Gly	His	Ile	Tyr	Arg
			20					25					30		
Met	Phe	Leu	Tyr	Glu	Ser	Ala	Leu	Leu	Ile	Leu	Leu	Ser	Leu	Leu	Phe
			35					40					45		
Val	Thr	Val	Leu	Leu	Phe	Thr	Phe	Lys	Leu	Glu	Ile	Glu	Asp	Leu	Ser
			50				55				60				
Gly	Ala	Ser	Leu	Lys	Ala	Leu	Phe	Thr	Trp	Gln	Thr	Leu	Trp	Val	Pro
65					70					75					80
Ile	Leu	Val	Ser	Leu	Val	Leu	Phe	Leu	Val	Ile	Gly	Leu	Phe	Pro	Gly
				85					90					95	
Lys	Leu	Phe	Ala	Ala	Ile	Pro	Val	Thr	Gln	Val	Phe	His	Arg	Phe	Thr
			100						105				110		
Ala	His	Arg	Phe	Val	Trp	Lys	Arg	Ser	Leu	Leu	Phe	Ile	Gln	Phe	Ala
			115				120					125			
Gly	Ile	Ala	Phe	Ile	Leu	Gly	Leu	Leu	Met	Val	Ile	Leu	Leu	Gln	Tyr
			130				135					140			
His	Gln	Val	Met	Thr	Arg	Asp	Met	Gly	Tyr	Lys	Val	Asp	Asn	Leu	Ala
145					150					155					160
Val	Gly	Trp	Ser	Pro	Tyr	Arg	Glu	Ile	Asp	Lys	Met	Asp	Gly	Ile	Leu
				165					170					175	
Arg	Gly	Leu	Pro	Ile	Val	Glu	Glu	Phe	Cys	Asn	Ala	Ser	Thr	Ile	Ile
			180					185					190		
Tyr	Gly	Gly	Tyr	Met	Gly	Gln	Pro	Tyr	Thr	Asp	Ala	His	Gly	Lys	Glu
			195				200					205			
Phe	Met	Gly	Arg	Ile	Glu	Phe	Val	Asp	Glu	His	Tyr	Val	Pro	Val	Met
			210			215					220				
Gly	Leu	Gln	Ile	Ile	Lys	Gly	Arg	Asn	Ile	Gln	Gln	Asp	Lys	Glu	Ile
225					230					235					240
Leu	Ile	Asn	Glu	Glu	Met	Val	Arg	Gln	Ile	Gly	Trp	Thr	Asp	Ser	Pro
				245					250					255	
Ile	Gly	Lys	Asn	Leu	Glu	Asp	Gly	Lys	Asn	Asn	Phe	Gly	Thr	Ile	Val
			260					265					270		
Gly	Val	Val	Lys	Asp	Tyr	Val	Val	Gln	Ser	Ala	Tyr	Met	Pro	Gln	Ala
			275				280					285			
Pro	Val	Ala	Leu	Met	Ser	Asn	Leu	Glu	Trp	Met	Asn	Val	Leu	Asn	Lys
			290			295					300				
Arg	Asn	Ile	Ile	Leu	Lys	Glu	Pro	Phe	Gly	Glu	Asn	Leu	Ala	Lys	Ile
305					310					315					320
Asn	Thr	Leu	Met	Lys	Glu	Ala	Phe	Pro	Thr	Val	Asp	Ile	Val	Phe	Arg
				325					330					335	
Ser	Ala	Arg	Gln	Glu	Ile	Asp	Lys	Gln	Tyr	Gln	Glu	Val	Arg	Arg	Phe
			340					345					350		
Arg	Asn	Val	Val	Ile	Ile	Ala	Ser	Ile	Ala	Ile	Leu	Leu	Ile	Ala	Leu

Val Gly Ile Val Phe Ala Tyr Ile Val Ser Asn Lys Trp Leu Glu Gln  
                   420                  425                  430  
 Phe Ser Asp Arg Val Ser Val Asn Gly Gly His Phe Leu Val Val Ile  
                   435                  440                  445  
 Ile Ile Ile Leu Leu Leu Ile Ile Gly Ser Val Ile Gly Arg Ser Trp  
                   450                  455                  460  
 Asn Val Ala Asn Glu Asn Pro Val Asn Ser Ile Lys Asn Glu  
 465                  470                  475

<210> 5563  
 <211> 95  
 <212> PRT  
 <213> B.fragilis

<400> 5563  
 Ser Phe Ile Val Ile Leu Leu Ile Phe Tyr Phe Cys Ile Phe Met Asn  
 1                  5                  10                  15  
 Met Tyr Val Gly Asn Leu Ser Tyr Asn Val Lys Glu Ser Asp Leu Arg  
                   20                  25                  30  
 Gln Val Met Glu Glu Tyr Gly Val Val Glu Ser Val Lys Leu Ile Thr  
                   35                  40                  45  
 Asp Arg Glu Thr Arg Arg Ser Lys Gly Phe Ala Phe Val Glu Met Pro  
                   50                  55                  60  
 Glu Ser Ser Glu Ala Ser Asn Ala Ile Lys Glu Leu Asn Gly Ala Glu  
 65                  70                  75                  80  
 Tyr Ala Gly Arg Pro Met Val Val Lys Glu Ala Leu Pro Arg Asn  
                   85                  90                  95

<210> 5564  
 <211> 306  
 <212> PRT  
 <213> B.fragilis

<400> 5564  
 Pro Phe Asn Val Asp Pro Leu Ile Tyr Ser Leu Leu Leu Val Trp Tyr  
 1                  5                  10                  15  
 Glu Leu Lys Val Ile Pro Leu Arg Pro Ile Phe Asn Leu Lys Arg Leu  
                   20                  25                  30  
 Asp Met Ala Gly Tyr Ile Ser Asp Asp Thr Arg Lys Val Thr Thr His  
                   35                  40                  45  
 Arg Leu Ile Glu Met Lys Gln Arg Gly Glu Lys Ile Ser Met Leu Thr  
                   50                  55                  60  
 Ser Tyr Asp Tyr Thr Met Ala Gln Ile Val Asp Gly Ala Gly Ile Asp  
 65                  70                  75                  80  
 Val Ile Leu Val Gly Asp Ser Ala Ser Asn Val Met Ala Gly Asn Val  
                   85                  90                  95  
 Thr Thr Leu Pro Ile Thr Leu Asp Gln Met Ile Tyr His Gly Lys Ser  
                   100                  105                  110  
 Val Val Arg Gly Val Lys Arg Ala Met Val Val Val Asp Met Pro Phe  
                   115                  120                  125  
 Gly Ser Tyr Gln Gly Asn Glu Met Glu Gly Leu Ala Ser Ala Ile Arg  
                   130                  135                  140  
 Ile Met Lys Glu Ser His Ala Asp Ala Leu Lys Leu Glu Gly Gly Glu  
 145                  150                  155                  160  
 Glu Ile Ile Asp Thr Val Lys Arg Ile Leu Ser Ala Gly Ile Pro Val  
                   165                  170                  175  
 Met Gly His Leu Gly Leu Met Pro Gln Ser Ile Asn Lys Tyr Gly Thr  
                   180                  185                  190  
 Tyr Thr Val Arg Ala Lys Asp Asp Ala Glu Ala Glu Lys Leu Ile Arg

195	200	205
Asp Ala His Leu Leu Glu Glu Ala Gly Cys Phe Gly Leu Val Leu Glu		
210	215	220
Lys Ile Pro Ala Ala Leu Ala Ser Arg Val Ala Ser Glu Leu Thr Ile		
225	230	235
Pro Val Ile Gly Ile Gly Ala Gly Gly Asp Val Asp Gly Gln Val Leu		
	245	250
Val Ile Gln Asp Met Leu Gly Met Asn Asn Gly Phe Arg Pro Arg Phe		
	260	265
Leu Arg Arg Tyr Ala Asp Leu Tyr Thr Val Met Thr Asp Ala Ile Ser		
	275	280
His Tyr Val Ser Asp Val Lys Asn Cys Asp Phe Pro Asn Glu Lys Glu		
	290	295
Gln Tyr		300
305		

&lt;210&gt; 5565

&lt;211&gt; 443

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5565

Asp Glu Lys Val Trp Phe Met Lys Ile His Leu Lys Leu Leu Thr Glu		
1	5	10
Arg Tyr Trp Phe Arg Leu Gly Leu Ser Leu Cys Phe Ala Ile Thr Ala		
	20	25
Ala Leu Ser Tyr Ala Asp Arg Asp Phe Ile Trp Met Gly Leu Ser Leu		
	35	40
Cys Leu Leu Leu Phe Ser Ile Trp Trp Gln Leu Ser Leu Tyr Arg Ile		
	50	55
His Thr Lys Arg Val Leu Phe Met Ile Asp Ala Leu Glu Asn Asn Asp		
	65	70
Ser Ala Ile His Phe Pro Glu Glu Gln Ile Met Pro Glu Thr Arg Glu		
	85	90
Val Asn Arg Ala Leu Asn Arg Val Gly Arg Ile Leu Tyr Asn Val Lys		
	100	105
Ser Glu Thr Val Gln Gln Glu Lys Tyr Tyr Glu Leu Ile Met Asp Cys		
	115	120
Ile Asn Thr Gly Val Leu Val Leu Asn Glu Asn Gly Ala Val Tyr Gln		
	130	135
Lys Asn Asn Glu Ala Leu Arg Leu Leu Gly Leu Asn Val Phe Thr His		
	145	150
Ile Arg Gln Leu Asn Lys Val Asp Ile Gln Leu Met Lys Lys Ile Glu		
	165	170
Phe Cys Arg Pro Gly Asp Lys Ile Gln Thr Ile Phe Asn Asn Glu Arg		
	180	185
Gly Thr Ile Asn Leu Ser Ile Arg Val Ser Gly Ile Thr Val Arg Glu		
	195	200
Glu Gln Leu Arg Ile Leu Ala Phe Asn Asp Ile Asn Ser Glu Leu Asp		
	210	215
Glu Lys Glu Ile Asp Ser Trp Ile Arg Leu Thr Arg Val Leu Thr His		
	225	230
Glu Ile Met Asn Ser Val Thr Pro Ile Thr Ser Leu Ser Glu Thr Leu		
	245	250
Leu Ser Leu Ala Asp Thr Arg Asp Glu Glu Ile Arg Arg Gly Leu Gln		
	260	265
Thr Ile Ser Thr Thr Gly Lys Gly Leu Leu Ser Phe Val Glu Ser Tyr		
	275	280
Arg Arg Phe Thr Arg Ile Pro Thr Pro Glu Pro Ser Leu Phe Tyr Val		

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290	295	300
Lys Ala Phe Ile Asp Arg Met Val Glu Leu Ala Arg His Gln Asn Lys		
305	310	315
Cys Asp Asn Ile Thr Phe His Ile Asp Ile Ala Pro Ala Asp Leu Ile		320
	325	330
Val Tyr Ala Asp Glu Asn Leu Ile Ser Gln Val Val Ile Asn Leu Leu		335
	340	345
Lys Asn Ala Ile Gln Ala Ile Asp Ala Gln Ala Asp Gly Lys Ile Glu		350
	355	360
Ile Lys Gly Arg Cys Asn Ala Ala Glu Glu Ile Leu Ile Glu Ile Lys		365
	370	375
Asn Asn Gly Pro Ala Ile Pro Ser Asp Ile Ala Asp His Ile Phe Ile		380
385	390	395
Pro Phe Phe Thr Thr Lys Glu Gly Gly Ser Gly Ile Gly Leu Ser Ile		400
	405	410
Ser Arg Gln Ile Met Arg Leu Ser Gly Gly Ser Ile Thr Leu Leu Gln		415
	420	425
Gly Lys Glu Thr Lys Phe Ile Leu Lys Phe Lys		430
	435	440

&lt;210&gt; 5566

&lt;211&gt; 240

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5566

Asn Leu Met Val Met Ile Met Lys Trp Leu Asn Phe Asn Ser Ile Ile		
1	5	10
Gly Met Ala Val Leu Ser Leu Leu Phe Tyr Thr Glu Asn Val Ala Ala		15
	20	25
Gln Thr Asp Lys Asn Asp Thr Lys Gln Lys Ile Asp Thr Ile Gln Thr		30
	35	40
Thr Gln Pro Glu Tyr Ser Lys Tyr Asp Lys Arg Ile His Arg Phe Arg		45
	50	55
Lys Gly Trp Asn Ser Leu Ile Pro Thr His Asn Lys Ile Gln Tyr Ala		60
65	70	75
Gly Asn Met Gly Met Phe Ser Phe Gly Thr Gly Trp Asp Tyr Gly Lys		80
	85	90
Arg Asp Gln Trp Glu Thr Asp Leu Phe Gly Phe Ile Pro Lys His		95
	100	105
Asp Ser His Arg Ala Lys Met Thr Met Thr Leu Lys Gln Asn Tyr Met		110
	115	120
Pro Trp Ser Leu Glu Leu Gly Lys Gly Phe Ser Thr Glu Pro Leu Ala		125
	130	135
Cys Gly Ile Tyr Phe Asn Thr Val Phe Gly His Glu Phe Trp Val His		140
145	150	155
Glu Pro Ser Arg Tyr Pro Glu Gly Tyr Tyr Gly Phe Ser Ser Lys Ile		160
	165	170
Arg Thr His Ile Phe Leu Gly Gln Arg Leu Thr Tyr Asp Ile Asp Arg		175
	180	185
Glu Arg Arg Phe Phe Ala Lys Ser Val Thr Leu Phe Tyr Glu Leu Ser		190
	195	200
Thr Cys Asp Leu Leu Leu Ile Ser Arg Val Thr Asn Ser Tyr Leu Arg		205
	210	215
Ala Arg Asp Tyr Leu Ser Leu Ser Phe Gly Leu Lys Phe Gln Trp Leu		220
225	230	235
		240

&lt;210&gt; 5567

&lt;211&gt; 84



Gly Val Glu Phe Phe Leu Ser His Glu Asn Gly Val Tyr Phe Ser Glu  
 290 295 300  
 Leu Ser Pro Arg Pro His Asp Thr Gly Met Val Thr Leu Ala Gly Thr  
 305 310 315 320  
 Gln Asn Leu Asn Glu Phe Glu Leu His Leu Arg Ala Val Leu Gly Leu  
 325 330 335  
 Pro Ile Pro Gly Ile Lys Gln Glu Arg Ile Gly Ala Ser Ala Val Ile  
 340 345 350  
 Leu Ser Pro Ile Ala Ser Gln Glu Arg Pro Gln Tyr Arg Gly Met Glu  
 355 360 365  
 Glu Val Thr Gly Glu Glu Asp Thr Tyr Leu Arg Ile Phe Gly Lys Pro  
 370 375 380  
 Tyr Thr Arg Val Asn Arg Arg Met Gly Val Val Leu Cys Tyr Ala Pro  
 385 390 395 400  
 Asn Gly Ser Asp Leu Asp Ala Leu Arg Asp Lys Ala Lys Arg Ile Ala  
 405 410 415  
 Asp Lys Val Glu Val Tyr  
 420

&lt;210&gt; 5569

&lt;211&gt; 214

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; UNSURE

&lt;222&gt; (33)

&lt;223&gt; Identity of amino acid sequences at the above locations are unknown.

&lt;400&gt; 5569

Asn Lys Arg Phe Met Arg Ser Leu Ile Gly Lys Gln Ala Pro Lys Phe  
 1 5 10 15  
 Asp Ala Thr Ala Val Ile Asn Gly His Glu Ile Val Gln Asn Phe Arg  
 20 25 30  
 Xaa Asp Gln Tyr Lys Gly Lys Lys Tyr Val Val Phe Phe Tyr Pro  
 35 40 45  
 Met Asp Phe Thr Phe Val Cys Pro Thr Glu Leu His Ala Phe Gln Glu  
 50 55 60  
 Lys Leu Glu Glu Phe Glu Lys Arg Asp Val Ala Val Val Gly Cys Ser  
 65 70 75 80  
 Val Asp Ser Glu Tyr Ser His Phe Ser Trp Leu Gln Met Pro Lys Asn  
 85 90 95  
 Glu Gly Gly Ile Gln Gly Val Lys Tyr Pro Ile Val Ser Asp Phe Ser  
 100 105 110  
 Lys Ser Ile Ser Glu Ser Tyr Gly Val Leu Ala Gly Ser Tyr Ala Pro  
 115 120 125  
 Asp Glu Asn Gly Asn Trp Val Cys Glu Gly Thr Pro Val Ala Phe Arg  
 130 135 140  
 Gly Leu Phe Leu Ile Asp Lys Glu Gly Val Val Arg His Cys Val Ile  
 145 150 155 160  
 Asn Asp Leu Pro Leu Gly Arg Asn Val Asp Glu Val Leu Arg Met Val  
 165 170 175  
 Asp Ala Leu Gln His Phe Glu Glu Tyr Gly Glu Val Cys Pro Ala Asn  
 180 185 190  
 Trp Ser Lys Gly Lys Asp Ala Met Lys Ala Thr Glu Asp Gly Val Ala  
 195 200 205  
 Asn Tyr Leu Ser Lys His  
 210

<210> 5570  
 <211> 77  
 <212> PRT  
 <213> B.fragilis

<400> 5570  
 Asp His Leu Phe Cys Val Ile Ile Cys Asn Leu Ile Leu Lys Asn Asn  
 1 5 10 15  
 Ser Leu Phe Phe Ile Arg Asn Lys Arg His Tyr Tyr Val Leu Lys Lys  
 20 25 30  
 Ser Leu Lys Tyr Leu Pro Phe Lys Asn Lys Gly Leu Pro Leu His Pro  
 35 40 45  
 Lys Ser Arg Thr Leu Asp Gly Asn Ala Leu Leu Ala Gln Leu Val Glu  
 50 55 60  
 Gln Leu Thr Leu Asn Gln Trp Val Gln Gly Ser Ser Pro  
 65 70 75

<210> 5571  
 <211> 299  
 <212> PRT  
 <213> B.fragilis

<400> 5571  
 Thr Leu Thr Pro Lys Lys Ser Glu Tyr Ser Pro Leu Tyr His Asn Asn  
 1 5 10 15  
 Met His Thr Ile Gln Ile Asn Asp Asp Cys Tyr Arg Val Pro Glu Ser  
 20 25 30  
 Trp Asp Glu Leu Thr Glu Lys Gln Leu Ser Tyr Leu Val Asn Leu Thr  
 35 40 45  
 Gln Ser Asp Ile Pro Ile Glu Glu Leu Lys Val His Met Met Leu Tyr  
 50 55 60  
 Cys Leu Asn Ala His Val Cys Arg Tyr Arg Asp Ile Tyr Arg His Gln  
 65 70 75 80  
 Val Lys Ile Ser Ile Gly Thr Pro Gly Asn Lys Ile Pro Phe Arg Thr  
 85 90 95  
 His Lys Lys Lys Tyr Leu Leu Leu Pro Glu Glu Val Asn Arg Leu Ala  
 100 105 110  
 Lys Leu Phe Asn Phe Leu Leu Met Cys Glu Lys Asp Thr Glu Met Lys  
 115 120 125  
 Tyr His Val His Pro Glu Leu Thr Val Asn Pro Tyr Arg Ala Phe Phe  
 130 135 140  
 Cys Arg Phe Arg Lys Phe Arg Gly Pro Glu Asp Gly Leu Leu Asp Ile  
 145 150 155 160  
 Arg Phe Glu Gln Phe Met His Leu Gln His Tyr Leu Asp Ala Ile Asn  
 165 170 175  
 Gln Asp Pro Glu Gln Ile Asn His Ala Leu Ala Cys Leu Trp His Thr  
 180 185 190  
 Ser Lys Thr Phe Asn Ile Asn Arg Leu Glu Lys Asp Ala Ser Ile Leu  
 195 200 205  
 Ser His Leu Pro His Arg Val Lys Met Ile Met Tyr Trp Tyr Ile Ile  
 210 215 220  
 Gly Ser Leu Ala Tyr Leu Ala Asn Gly Phe Pro Arg Ile Phe Ser Gly  
 225 230 235 240  
 Asn Gly Lys Ser Asn Gly Arg Val Phe Asp Ser Gln Met Arg Leu Leu  
 245 250 255  
 Asp Ser Leu Ala Gln Ser Asp Met Thr Lys Lys Pro Glu Ile Lys Lys  
 260 265 270  
 Gly Phe Leu Ile Asp Ala Leu Tyr Thr Met Asp Glu Ser Leu Arg Lys  
 275 280 285

seq 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Gln Gln Glu Leu Asn Glu Asn Met Gln Asn Lys  
 290 295

<210> 5572  
 <211> 165  
 <212> PRT  
 <213> B.fragilis

<400> 5572

Pro Leu Thr Phe Met Glu Ile Tyr Asn His Phe Glu Tyr Gly Lys Thr  
 1 5 10 15  
 Leu Ala Ile Arg Leu Lys Pro Ile Ala His Thr Pro Glu Lys Pro Arg  
 20 25 30  
 Phe Phe Thr Ala Phe Gly Leu Glu Asp Leu Tyr Asn Phe Asn Asp Lys  
 35 40 45  
 Leu Ser Ser Val Ser Gly Met Ile Leu Ile Ala Val Asp Gly Cys Glu  
 50 55 60  
 Ser Glu Ser Lys Arg Asn Glu Ser Asp Ala Leu Asn Asn Asn Asp Ile  
 65 70 75 80  
 Phe Ser Phe Ile Val Val Gln Asn Thr Val Ser Asp Arg Pro Glu Thr  
 85 90 95  
 Val Asn Gln Ala Ala Lys Glu Cys Lys Ala Ile Ala Lys Gln Ile Arg  
 100 105 110  
 Asn His Ile Leu Gln Asp Pro Asp Ile Ser Glu Phe Ile Asp Asp Thr  
 115 120 125  
 Ile Gln Phe Asn Gly Ile Gly Pro Ile Gly Asp Asn Phe Tyr Gly Val  
 130 135 140  
 Val Leu Thr Phe Ser Leu Val Gln Pro Glu Thr Tyr Phe Ile Asp Gln  
 145 150 155 160  
 Thr Tyr Trp Glu Asp  
 165

<210> 5573  
 <211> 67  
 <212> PRT  
 <213> B.fragilis

<400> 5573

Ile Tyr Pro Pro Thr Ser Asn Val Tyr Leu Lys Met His Met Ser Asp  
 1 5 10 15  
 Lys Tyr Glu Met Leu Ser Leu Ile His Asn Thr Ile Val Phe Lys Glu  
 20 25 30  
 Glu Ser Tyr Met Thr Thr Thr His His Gln Val Asn Ile Leu Ser Cys  
 35 40 45  
 Lys Val Phe Leu Met Lys Asn Gly Arg Arg Asn Met Ser Thr Leu Phe  
 50 55 60  
 Ser Tyr Leu  
 65

<210> 5574  
 <211> 237  
 <212> PRT  
 <213> B.fragilis

<400> 5574

Met Ser Gln Pro Phe Phe Gln Phe Lys Gln Phe Thr Val Trp His Asp  
 1 5 10 15  
 Lys Cys Ala Met Lys Val Gly Thr Asp Gly Val Leu Leu Gly Ala Trp  
 20 25 30



Thr Pro Val Glu Ser Ser Ala Arg Ile Leu Asp Ile Gly Thr Gly Thr  
 35 40 45  
 Gly Leu Val Ala Leu Met Leu Ala Gln Arg Cys Ser Ala Ser Val Ile  
 50 55 60  
 Ala Leu Glu Ile Asp Gly Thr Ala Ala Gln Gln Ala Ala Glu Asn Ile  
 65 70 75 80  
 Thr Arg Ser Pro Trp Gly Ser Arg Ile Glu Val Val Cys Gln Asp Phe  
 85 90 95  
 Arg Leu Tyr Ser Asn Lys Asn Asn Ser Leu Lys Tyr Asp Thr Ile Val  
 100 105 110  
 Ser Asn Pro Pro Tyr Phe Thr Asp Ser Leu Lys Cys Pro Asp Ser Gln  
 115 120 125  
 Arg Asn Thr Ala Arg His Asn Asp Asn Leu Ser Tyr Glu Glu Leu Leu  
 130 135 140  
 Lys Gly Val Ser Asn Leu Leu Ser Pro Asn Gly Thr Phe Thr Val Val  
 145 150 155 160  
 Ile Pro Met Asp Ala Ser Asp Ser Phe Lys Asp Ile Ala Ser Ser Gln  
 165 170 175  
 Gly Leu Tyr Pro Ser Arg Gln Leu Leu Val Ile Thr Lys Pro Gly Ala  
 180 185 190  
 Pro Pro Lys Arg Thr Leu Ile Ser Phe Thr Phe Ile Lys Gln Asp Cys  
 195 200 205  
 Lys Glu Glu Lys Leu Leu Thr Glu Val Ser Arg His Arg Tyr Ser Asp  
 210 215 220  
 Glu Tyr Ile Lys Leu Thr Arg Glu Phe Tyr Leu Lys Met  
 225 230 235

<210> 5575  
 <211> 159  
 <212> PRT  
 <213> B.fragilis

<400> 5575  
 Glu Pro Glu Pro Asn Leu Ser Arg Lys Lys Ile Ile Ala Gly Tyr His  
 1 5 10 15  
 Asn Arg Gln Val Asn Ser Phe Ser Asn Leu Asn Ile Lys Thr Met Ser  
 20 25 30  
 Val Asn Lys Cys Ile Phe Ile Gly Asn Met Gly Arg Asp Ala Glu Val  
 35 40 45  
 Arg Thr Thr Glu Thr Gly Ile Lys Val Ala Gln Phe Ser Ile Ala Cys  
 50 55 60  
 Thr Glu Arg Ala Tyr Thr Asn Lys Ala Gly Gln Thr Ile Pro Glu Arg  
 65 70 75 80  
 Thr Glu Trp Ile Pro Val Val Ala Trp Arg Arg Leu Ala Glu Thr Ile  
 85 90 95  
 Glu Lys Tyr Thr His Lys Gly Ser Lys Leu Tyr Ile Glu Gly Arg Phe  
 100 105 110  
 Thr Thr Arg Lys Tyr Glu Thr Asn Asp Gly Gln Lys Arg Thr Val Ser  
 115 120 125  
 Glu Ile Val Ala Glu Ser Ile Glu Met Leu Asp Pro Lys Arg Asp Ala  
 130 135 140  
 Pro Ser Leu Pro Pro Glu Pro Glu Gln Lys Leu Ser Tyr Asn Pro  
 145 150 155

<210> 5576  
 <211> 202  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5576

Ser Arg Lys Phe Met Tyr Gln Phe Ile Glu Thr Ile Arg Ile Glu Arg  
 1 5 10 15  
 Gly Val Val Tyr Asn Leu Asp Tyr His Thr Glu Arg Met Asn Gln Thr  
 20 25 30  
 Arg Ala Val Phe Trp Pro Asp Glu Pro Pro Leu Asn Leu Ser Glu Ser  
 35 40 45  
 Leu Gln Pro Ile Met Asn Val Glu Met Ile Lys Cys Arg Val Val Tyr  
 50 55 60  
 Ser Arg Trp Ile Glu Glu Ile Leu Tyr Thr Pro Tyr Gln Ile Arg Pro  
 65 70 75 80  
 Val His Ser Leu Gln Ile Val His Ser Asp Asn Ile Asp Tyr Thr Tyr  
 85 90 95  
 Lys Ser Thr Asp Arg Ser Ala Ile Asn Glu Leu Tyr Met His Lys Arg  
 100 105 110  
 Glu Gln Asp Glu Ile Leu Ile Thr Arg Asn Gly Leu Leu Thr Asp Thr  
 115 120 125  
 Ser Ile Ala Asn Ile Ala Leu Phe Asn Gly Lys Glu Trp His Thr Pro  
 130 135 140  
 Lys His Pro Leu Leu Lys Gly Val Gln Arg Ala Ala Leu Ile Asp Lys  
 145 150 155 160  
 His Leu Ile Arg Glu Lys Glu Ile Thr Val Asp Gln Leu Phe Asn Tyr  
 165 170 175  
 Ser Gln Ile Cys Leu Phe Asn Ala Met Ile Asp Phe Gly Lys Ile Lys  
 180 185 190  
 Ile Asp Val Asn Arg Glu Leu Ile Arg Ile  
 195 200

&lt;210&gt; 5577

&lt;211&gt; 419

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5577

Thr Met Lys Phe Ser Glu Leu Gln Leu Asn Asp Asn Val Leu Glu Ala  
 1 5 10 15  
 Leu Asp Ala Met Arg Phe Glu Glu Cys Thr Pro Ile Gln Glu Gln Ala  
 20 25 30  
 Ile Pro Val Ile Leu Glu Gly Arg Asp Leu Ile Ala Val Ala Gln Thr  
 35 40 45  
 Gly Thr Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Asn Lys Leu  
 50 55 60  
 Ser Glu Gly Gly His Pro Glu Asp Ala Ile Asn Cys Val Ile Met Ser  
 65 70 75 80  
 Pro Thr Arg Glu Leu Ala Gln Gln Ile Asp Gln Gln Met Glu Gly Phe  
 85 90 95  
 Ser Tyr Phe Met Pro Val Ser Ser Val Ala Val Tyr Gly Gly Asn Asp  
 100 105 110  
 Gly Ile Leu Phe Glu Gln Gln Lys Lys Gly Leu Met Leu Gly Ala Asp  
 115 120 125  
 Val Val Ile Ala Thr Pro Gly Arg Leu Ile Ala His Leu Ser Leu Gly  
 130 135 140  
 Tyr Val Asp Leu Ser Arg Val Ser Tyr Phe Ile Leu Asp Glu Ala Asp  
 145 150 155 160  
 Arg Met Leu Asp Met Gly Phe Tyr Glu Asp Ile Met Gln Ile Val Lys  
 165 170 175  
 Tyr Leu Pro Lys Glu Arg Gln Thr Ile Met Phe Ser Ala Thr Met Pro  
 180 185 190  
 Ala Lys Ile Gln Gln Leu Ala Asn Thr Ile Leu Asn Asn Pro Ala Glu

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195	200	205
Val Lys Leu Ala	Val Ser Lys Pro Ala Glu Lys Ile	Val Gln Ala Ala
210	215	220
Tyr Val Cys Tyr Glu Asn Gln Lys Leu Gly Ile	Val Arg Ser Leu Phe	
225	230	235
Ala Glu Glu Val Pro Glu Arg Val Ile Ile Phe Ala Ser Ser Lys Ile	240	245
	245	250
Lys Val Lys Glu Val Ala Lys Ala Leu Lys Met Met Lys Leu Asn Val	255	
260	265	270
Gly Glu Met His Ser Asp Leu Glu Gln Val Gln Arg Glu Phe Ile Met	275	280
	285	
His Glu Phe Lys Ser Gly Arg Ile Asn Ile Leu Val Ala Thr Asp Ile	290	295
305	310	315
Val Ser Arg Gly Ile Asp Ile Asp Asp Ile Arg Leu Val Ile Asn Phe	320	
Asp Val Pro His Asp Ser Glu Asp Tyr Val His Arg Ile Gly Arg Thr	325	330
	335	
Ala Arg Ala Asn Asn Asp Gly Val Ala Leu Thr Phe Val Asn Glu Lys	340	345
	350	
Glu Gln Thr Asn Phe Lys Asn Ile Glu Asn Phe Leu Glu Lys Glu Ile	355	360
	365	
Tyr Lys Ile Pro Val Pro Ala Glu Leu Gly Glu Ala Pro Gln Tyr Asn	370	375
	380	
Pro Arg Ser Tyr Thr Asn Ala Gly Arg Gly Gly Arg Asn Phe Arg Asn	385	390
	395	400
Gly Asn Arg Lys Asn Asn Asn Gly Gly Arg Ser Thr Ala Pro Arg Ser	405	410
	415	
Gly Arg Arg		

<210> 5578  
 <211> 156  
 <212> PRT  
 <213> B.fragilis

<400> 5578

Met Ile Thr Thr Lys Ile Glu Val Pro Pro His Leu Cys Glu Tyr Ile	1	5	10	15
Arg Gly Lys Tyr Cys Asn Leu Thr Ser Asp Pro Val Arg Phe Pro Asp	20	25	30	
Asn Leu Asn Ile Tyr His Val Ile Phe Asp Leu Leu Gln Lys Arg Pro	35	40	45	
Ser Glu Ala Pro Val Asp Arg Gly Asn Leu Glu Ile Cys Leu Pro Glu	50	55	60	
Arg Ser Ile Gly Lys Ser Pro Val Thr Tyr Asn Tyr Leu Gly Leu Arg	65	70	75	80
Ser Gln Val Ile Ile Ser Arg Lys Ile Glu Leu Met Met Trp Ala Glu	85	90	95	
Leu His Glu Tyr Leu Asp Glu Gln Lys His Arg Tyr Gly Ile Lys Tyr	100	105	110	
Ile Asp Gly Val Gln Phe Phe Met Arg Arg Tyr Gly Ile Asp Ser Leu	115	120	125	
Thr Glu Glu Ala Phe Leu Lys His Tyr Gln Arg Trp Arg Ala Lys Val	130	135	140	
Arg Arg Lys Glu Lys Arg Ser Tyr Lys Lys Arg Glu	145	150	155	

<210> 5579  
 <211> 103

<212> PRT  
 <213> B.fragilis

<400> 5579

Glu	Asp	Asp	Thr	Gly	Asp	Asn	Gly	Tyr	Thr	Phe	Thr	Ser	Cys	Ile	Pro
1				5				10						15	
Thr	Ser	Ser	Tyr	Asn	Ser	Gly	Leu	Asp	Ser	Asp	Lys	Thr	Tyr	Asn	Asn
			20				25						30		
Thr	Lys	Val	Tyr	His	Ser	Ser	Ser	Leu	Ile	Gln	Val	Ile	Lys	Ser	Glu
		35					40				45				
Leu	Thr	His	Glu	Ala	Ala	Leu	Leu	His	Val	Leu	Phe	Leu	Ser	Val	Met
	50					55				60					
Cys	Leu	Arg	Ile	Ile	Gly	Tyr	Arg	Arg	Gly	Leu	Met	Leu	Ser	Ser	Tyr
65					70				75						80
Ser	Trp	His	Ser	Pro	Phe	Phe	Ser	Phe	Ser	Ile	Trp	Leu	Ile	Arg	Leu
				85					90					95	
Arg	Ile	Ala	Ile	Asn	Leu	Ser									
				100											

<210> 5580  
 <211> 103  
 <212> PRT  
 <213> B.fragilis

<400> 5580

Ala	Gly	Cys	Thr	Ser	Leu	Leu	Ala	Asn	Lys	Thr	Lys	Ala	Gln	Ile	Gln
1				5				10						15	
Ala	Ile	Asn	Asp	Ile	Val	Ile	Ala	Ile	Val	Phe	Asn	Ile	Arg	Ser	Trp
			20				25						30		
Pro	Leu	Val	Asn	Ala	Pro	Ser	Gly	Ile	Pro	Leu	Pro	Ile	Ile	Phe	Glu
		35					40				45				
Leu	Ala	Gly	Ile	Asn	Glu	Lys	Arg	Val	Glu	Asp	Val	Ala	Ala	Val	Ala
	50				55				60						
Ile	Gln	Val	Val	Ile	Ser	Pro	Thr	Pro	Ala	Thr	Thr	Cys	Pro	Ala	Thr
65					70				75						80
Lys	Glu	Glu	Val	Glu	Val	Asp	Arg	Val	Asn	Met	Gln	Ile	Pro	Pro	Ile
				85					90					95	
Ile	Val	Thr	Thr	Ala	Ala	Arg									
				100											

<210> 5581  
 <211> 380  
 <212> PRT  
 <213> B.fragilis

<400> 5581

Leu	Gln	Cys	Thr	Met	Ser	Leu	Thr	Ala	Asn	Ile	Tyr	Pro	Ser	Thr	Ile
1				5				10						15	
Ala	Leu	Ala	Gly	Asn	Pro	Ile	Lys	Leu	Thr	Ile	Asn	Ser	Ser	Ser	Val
			20				25						30		
Val	Ser	Tyr	Thr	Ile	Arg	Gln	Ala	Asp	Arg	Thr	Ile	Phe	Ser	Gly	Ser
		35					40				45				
Gly	Glu	Gly	Glu	Phe	Ser	Val	Phe	Leu	Gln	Asp	Ile	Leu	Ser	Gly	Ile
	50				55				60						
Leu	Ser	Pro	Lys	His	Leu	Asn	Glu	Ser	Thr	Asp	Ile	Leu	Leu	Leu	
65					70				75						80
Asp	Ser	Thr	Ser	Ala	Thr	Asp	Ile	Ala	Ile	Ser	Val	Gln	Asn	Thr	Gln
				85					90					95	
Gly	Glu	Thr	Lys	Thr	Leu	Ser	Leu	Lys	Ala	Val	Ile	Gly	Gly	Ile	Ser

		100						105					110				
Lys	Arg	Leu	Leu	Arg	Arg	Leu	Leu	Asp	Glu	Asn	Ser	Asn	Ile	Phe	Thr		
		115						120					125				
Trp	Lys	Leu	Phe	Asn	Ser	Ser	Val	Asn	Phe	Phe	Lys	Thr	Thr	Arg	Thr		
		130						135					140				
Asn	Gly	Arg	Ile	Ile	Thr	Ile	Arg	Glu	Thr	Glu	Leu	Leu	Pro	Ile	Pro		
145					150					155					160		
Phe	Leu	Tyr	Pro	Asp	Gly	Ala	Leu	Lys	Val	Val	Ala	Ala	Gly	Ile	Glu		
				165					170					175			
Thr	Ser	Leu	Ser	Gly	Thr	Ala	Gly	Gln	Pro	Val	Ala	Leu	Asn	Leu	Tyr		
		180						185					190				
Arg	Leu	Arg	Lys	Lys	Leu	Phe	Gln	Thr	Asn	Gln	Lys	Leu	Ala	Ser	Val		
		195						200					205				
Phe	Asp	Ile	Tyr	Ser	Gly	Ser	Thr	Lys	Ser	Cys	Thr	Ile	Val	Ile	Thr		
210					215						220						
Pro	Gly	Thr	Val	Ser	Arg	Glu	Arg	Tyr	Leu	Leu	Glu	Phe	Leu	Asn	Ser		
225					230						235				240		
Tyr	Gly	Ala	Tyr	Glu	Arg	Ile	Glu	Val	Thr	Gly	Ile	Gly	Asn	Ile	Glu		
				245					250					255			
Ser	Glu	Ile	Glu	Ser	Asp	Ser	Thr	Tyr	Gln	Ile	Tyr	Asp	Glu	Ser	Ile		
		260					265						270				
Asp	Asp	Tyr	Ile	Glu	Ala	Arg	Glu	Arg	Gln	Ser	Ala	Arg	Asp	Lys	Leu		
		275					280						285				
Leu	Val	Glu	Ser	Gly	Tyr	Arg	Asn	Thr	Glu	Glu	Leu	Val	His	Leu	Met		
290					295						300						
Asp	Met	Leu	Ala	Ser	Asp	Ile	Lys	Ile	Leu	Gly	Leu	Ser	Gly	Arg			
305					310					315				320			
Asn	Ile	Arg	Val	Asn	Ala	Val	Ala	Asp	Asn	Leu	Thr	His	Ala	Ile	Arg		
				325					330					335			
Ser	Thr	Val	Pro	Glu	Ser	Ile	Lys	Met	Thr	Leu	His	Phe	Val	Asp	Ser		
		340						345					350				
Asp	Val	Arg	Tyr	Thr	Gly	Ser	Leu	Ser	Glu	Asp	Glu	Ile	Gly	Asn	Pro		
		355					360					365					
Arg	Ile	His	Thr	Glu	Gln	Phe	Thr	Pro	Gln	Phe	Asn						
370						375					380						

&lt;210&gt; 5582

&lt;211&gt; 322

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5582

Lys	Tyr	Arg	Phe	Asn	Leu	Arg	Asn	Arg	Arg	Lys	Met	Asn	Ala	Ile	Ile		
1				5					10					15			
Pro	Asp	Ile	Asp	Thr	Leu	Lys	Lys	Val	Val	Lys	Ile	Asn	Ala	Thr	Leu		
			20					25					30				
Pro	Asp	Glu	Ala	Ile	Asn	Pro	Tyr	Ile	Asp	Asp	Ala	Met	Asp	Ile	Tyr		
		35					40				45						
Leu	Thr	Pro	Tyr	Ile	Gly	Ile	Lys	Thr	Val	Glu	Lys	Ala	Leu	Thr	Gly		
50					55					60							
Thr	Asp	Lys	Arg	Leu	Asn	Asp	Lys	Ile	Leu	Arg	Thr	Leu	Gly	Pro	Leu		
65					70				75					80			
Thr	Leu	Met	Leu	Ala	Thr	Pro	Glu	Leu	Gly	Ile	Arg	Ile	Gly	Asp	Ser		
			85						90					95			
Gly	Ile	Thr	Val	Glu	Asn	Lys	Gln	Gly	Thr	Tyr	Ser	Pro	Ala	Asn	Glu		
		100						105					110				
Ala	Lys	Ile	Ala	Ala	Ala	Lys	Glu	Ser	Phe	Tyr	Phe	Arg	Gly	Met	Gln		
		115					120					125					
Ala	Leu	Asp	Arg	Leu	Leu	Thr	Phe	Leu	Thr	Asp	His	Pro	Glu	Thr	Tyr		

130	135	140
Pro Glu Tyr Ala Glu His Cys Lys Gln Ala Thr Asp Ser Ser Cys Phe		
145	150	155
Ile Arg Asp Ala Arg Glu Phe Gln Asp Thr Gly Leu Val Asn Ile Glu		
	165	170
Tyr Ser Thr Val Ser Phe Arg Met Met Leu Pro Thr Val Arg Gln Leu		
	180	185
Gln Glu Arg Asn Val Arg Glu Met Leu Lys Glu Asp Leu Tyr Gln Arg		
	195	200
Leu Leu Asp Ala His Thr Ala Gly Lys Glu Leu Thr Pro Lys Glu Lys		
	210	215
Val Leu Leu Gly His Ile Leu Arg Tyr Leu Ala Asn Lys Thr Ala Glu		
225	230	235
Leu Tyr Thr Ser Gln Thr Ser Arg Glu Gln Arg Thr Ile Asn Asp Thr		
	245	250
Pro Glu Phe Thr Pro Ile Ile Arg Pro Ile Tyr Gln Asp Gln Ala Ala		
	260	265
Thr Gly Asn Phe Phe Ala Asp Gln Ala Thr Tyr Tyr Ala Gly Lys Ile		
	275	280
Gln Asn Phe Ile Ser Glu Asn Ala Glu Glu Leu Gly Val Thr Pro Thr		
	290	295
Val Thr Ala Ile Asn Phe Asn Ser Lys Glu Lys Arg Ile Phe Thr Ser		
305	310	315
Ile Ser		320

&lt;210&gt; 5583

&lt;211&gt; 262

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5583

Asn Met Ile Thr Trp Asp Asn Phe Tyr Leu Phe Ala Val Ala Ser Ile		
1	5	10
Cys Leu Trp Leu Thr Gly Ala Ile Phe Ala Leu Arg Ser Ser Val Arg		
	20	25
Ser Arg Met Ala Val Val Leu Thr Ile Ala Gly Ile Thr Cys Leu Gly		
	35	40
Ile Phe Ile Ala Gly Leu Trp Ile Ser Leu Gln Arg Pro Pro Leu Arg		
	50	55
Thr Met Gly Glu Thr Arg Leu Trp Tyr Ser Phe Phe Met Gly Ile Ala		
65	70	75
Gly Leu Leu Thr Tyr Ile Arg Trp Lys Tyr Arg Trp Ile Leu Ser Phe		
	85	90
Ser Thr Leu Leu Ser Thr Val Phe Val Ile Ile Asn Leu Leu Lys Pro		
	100	105
Glu Ile His Asp Gln Ser Leu Met Pro Ala Leu Gln Ser Ile Trp Phe		
	115	120
Ile Pro His Val Thr Val Tyr Met Phe Ser Tyr Ser Val Leu Gly Cys		
	130	135
Ala Phe Ile Ile Ala Leu Cys Gly Leu Val His His Lys Glu Glu Tyr		
145	150	155
Leu Val Thr Ala Asp Asn Leu Val Tyr Ser Gly Val Ala Phe Leu Ser		
	165	170
Ile Gly Met Leu Leu Gly Ser Leu Trp Ala Lys Glu Ala Trp Gly Asn		
	180	185
Tyr Trp Ser Trp Asp Pro Lys Glu Thr Trp Ala Val Val Thr Trp Met		
	195	200
Gly Tyr Leu Leu Tyr Ile His Leu Arg Leu Arg Arg Lys Phe Arg Lys		

210	215	220
Lys Met Leu Tyr Val	Ile Leu Ile Phe Ser	Phe Leu Ala Leu Gln Met
225	230	235
Cys Trp Tyr Gly Val	Asn Tyr Leu Pro Ser	Ala Gln Gln Ser Val His
	245	250
Leu Tyr Asn Arg Asn Asn		255
260		

<210> 5584  
 <211> 1249  
 <212> PRT  
 <213> B.fragilis

<400> 5584

Ile Asn Glu Thr Val Ser Asn Met Ala Asn Asp Leu Asn Arg Ser Ile	
1 5 10 15	
Lys Leu Tyr Ile Asp Gly Ser Glu Ala Thr Asn Lys Ile Asp Leu Val	
20 25 30	
Lys Glu Ser Ile Ser Arg Leu Glu Asp Lys Leu Arg Ser Leu Thr Gly	
35 40 45	
Lys Glu Val Asp Tyr Ala Lys Arg Ser Gln Asp Leu Lys Lys Glu Leu	
50 55 60	
Asp Ala Lys Asn Arg Thr Leu Gln Asn Tyr Glu Lys Gln Leu Ala Glu	
65 70 75 80	
Thr Glu Arg Val Leu Lys Ser Leu Ser Gly Ala Thr Tyr Asn Glu Leu	
85 90 95	
Leu Ala Val Gln Ser Arg Val Arg Lys Glu Leu Arg Asn Ala Val Pro	
100 105 110	
Gly Thr Lys Gln Tyr Thr Ala Ala Leu Glu Gln Asn Arg Arg Val Thr	
115 120 125	
Glu Ala Leu Ser Arg Ala Gln Ala Asn Met Arg Val Glu Val Gly Ala	
130 135 140	
Gln Gly Asn Ile Trp Ser Arg Ala Ser Gly Phe Ile Asn Lys Tyr Ile	
145 150 155 160	
Gly Leu Ile Gly Thr Val Ile Ala Ala Ile Thr Gly Val Ser Met Lys	
165 170 175	
Leu Asn Gln Leu Arg Glu Gln Arg Asn Lys Arg Glu Glu Ala Lys Ala	
180 185 190	
Asp Val Glu Ala Leu Thr Gly Leu Ser Lys Asp Asp Ile Asn Trp Leu	
195 200 205	
Glu Gln Gln Ala Val Gln Leu Ser Thr Thr Met Thr Glu Ser Gly Ile	
210 215 220	
Arg Ile Arg Gln Ser Ala Thr Glu Ile Leu Asp Ala Tyr Lys Leu Val	
225 230 235 240	
Gly Ser Ala Lys Pro Glu Phe Leu Asp Asn Lys Glu Ala Leu Ala Glu	
245 250 255	
Val Thr Lys Gln Thr Leu Ile Leu Ala Ser Ala Ser Gly Met Thr Leu	
260 265 270	
Lys Asp Ala Val Asp Ala Val Thr Leu Ser Leu Asn Gln Tyr Gly Asp	
275 280 285	
Gly Ala Asp Gln Ala Ser Arg Tyr Ala Asn Val Met Ala Ala Gly Ser	
290 295 300	
Lys Tyr Gly Ala Ala Ala Val Glu Ser Val Thr Thr Ala Val Thr Lys	
305 310 315 320	
Ser Gly Val Ala Ala Ala Ser Ala Glu Ile Pro Ile Glu Gln Leu Val	
325 330 335	
Gly Thr Ile Glu Thr Leu Ala Glu Lys Gly Ile Lys Asp Glu Ile Ala	
340 345 350	
Gly Thr Gly Leu Lys Lys Phe Phe Leu Thr Leu Gln Thr Gly Ala Asp	

2363 5584 1249 PRT B.fragilis

355	360	365
Asp Thr Asn Pro Lys Ile Val Gly Leu Glu Lys Ala Leu Asp Asn Leu		
370	375	380
Gln Lys Lys Gln Leu Ser Ala Ala Gln Ile Lys Lys Gln Phe Gly Glu		
385	390	395
Glu Gly Tyr Asn Val Ala Ser Val Leu Ile Asn Glu Ala Asp Lys Val		
405	410	415
Lys Tyr Tyr Thr Glu Ala Val Thr Gly Thr Ser Val Ala Met Glu Gln		
420	425	430
Ala Ala Thr Lys Ser Glu Thr Ala Ala Lys Leu Ser Gln Ala Lys		
435	440	445
Asn Arg Met Gln Glu Leu Gly Ile Glu Leu Leu Glu Lys Leu Asn Pro		
450	455	460
Ala Leu Ile Ser Ala Ala Asn Gly Ala Val Ser Trp Thr Gly Lys Leu		
465	470	475
Ile Lys Leu Leu Asn Phe Ile Asn Glu Asn Lys Arg Ala Ile Thr Leu		
485	490	495
Leu Thr Ile Ala Leu Ile Ala Tyr Thr Ala Ala Lys Asn Ser Asp Val		
500	505	510
Ile Ile Ser Lys Val Val Thr Phe Trp Asn Asn Asn Ile Ala Lys Ser		
515	520	525
Leu Lys Ala Ile Lys Lys Glu Leu Met Thr Asn Pro Tyr Gly Ile Ile		
530	535	540
Ala Val Val Ala Ala Thr Ala Ile Ala Tyr Leu Ile Asn Leu Lys Lys		
545	550	555
Lys Asn Asp Glu Leu Lys Asp Ser Val Ser Gly Ile Lys Lys Val Asn		
565	570	575
Glu Glu Thr Asn Lys Ser Phe Ile Gln Gln Glu Ser Lys Ile Arg Ala		
580	585	590
Leu Thr Ala Val Ile Asn Asp Asn Gly Ile Ala Leu Gly Val Arg Arg		
595	600	605
Lys Ala Leu Asn Asp Leu Lys Glu Ile Ile Pro Asp Tyr Asn Ala Gln		
610	615	620
Leu Thr Asp Glu Gly Thr Leu Thr Lys Asn Asn Thr Asp Ala Ile Lys		
625	630	635
Asp Tyr Leu Val Gln Leu Glu Lys Gln Ile Lys Leu Lys Ala Ala Gln		
645	650	655
Gln Glu Leu Glu Asn Leu Tyr Ala Gln Lys Arg Thr Leu Glu Lys Asp		
660	665	670
Glu Glu Thr Gln Ser Asp Gln Tyr Trp Lys Ile Arg Gln Thr Asn Thr		
675	680	685
Leu Gln Gly Tyr Asn Arg Asn Ser Leu Thr Ala Lys Ile Ser Arg Leu		
690	695	700
Phe Gly Thr Glu Lys Glu Gly Lys Ala Leu Glu Thr Leu Asn Glu Thr		
705	710	715
Arg Lys Asn Leu Ser Ser Ile Ser Glu Lys Ile Asp Glu Ile Thr Lys		
725	730	735
Glu Ile Gly Glu Ser Ala Leu Ala Ile Glu Glu Val Asn Lys Ala Asn		
740	745	750
Glu Glu Thr Thr Asn Asn Lys Ile Thr Thr Pro Ile Ile Asp Glu Glu		
755	760	765
Lys Ala Lys Ala Leu Leu Lys Lys Lys Leu Glu Glu Glu Ala Lys Leu		
770	775	780
Tyr Ser Gln His Gln Ser Glu Leu Lys Glu Ala Tyr Leu Lys Arg Gln		
785	790	795
Asp Glu Thr Leu Gln Thr Glu Gln Gln Phe Asn Asp Arg Met Glu Thr		
805	810	815
Leu Glu Leu Glu His Gln Gln Arg Ile Ile Asn Ile Ala Gly Ala Lys		
820	825	830

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Ser Lys Glu Gly Ile Asp Ala Gln Asn Arg Ile Asn Asp Ile Lys Ile  
 835 840 845  
 Lys Gln Gln Lys Glu Gln Met Asn Arg Gln Leu Ala Glu Glu Lys Thr  
 850 855 860  
 Leu Tyr Glu Asn Gln Gln Lys Asp Leu Lys Leu Leu Tyr Val Ser Gly  
 865 870 875 880  
 Lys Asp Glu Asn Leu Lys Thr Glu Lys Glu Tyr Asn Glu Ala Met Glu  
 885 890 895  
 His Leu Thr Ile Met His Leu Glu Arg Val Leu Lys Ile Ala Asn Leu  
 900 905 910  
 Asp Ala Asp Gln Arg Arg Thr Ile Glu Gln Gln Leu Leu Asp Phe Lys  
 915 920 925  
 Val Lys Cys Leu Gln Asp Glu Lys Glu Arg Lys Lys Leu Glu Asp  
 930 935 940  
 Ala Ala Gln Lys Lys Lys Asp Glu Leu Ala Arg Lys Glu Lys Gln Arg  
 945 950 955 960  
 Leu Thr Glu Gln Ala Gln Gln Tyr Arg Gln Tyr Gly Glu Gln Ile Gly  
 965 970 975  
 Asp Thr Leu Gly Gln Met Ile Ser Gly Gln Glu Asn Ala Leu Gln Asn  
 980 985 990  
 Phe Ala Asp Thr Met Leu Asp Ile Leu Phe Asp Val Leu Ser Gln Met  
 995 1000 1005  
 Ile Asp Ile Glu Ile Ala Lys Ala Thr Gly Val Ala Val Gly Ala Val  
 1010 1015 1020  
 Ala Arg Ser Ala Ala Glu Ala Tyr Ala Met Pro Asp Ser Val Ala Thr  
 1025 1030 1035 1040  
 Phe Gly Ala Thr Gly Ala Ala Arg Ala Val Leu Ser Gly Leu Ile  
 1045 1050 1055  
 Met Gly Ala Leu Ala Ala Ala Lys Ser Thr Leu Lys Gly Leu Ile Lys  
 1060 1065 1070  
 Arg Gly Ser Ser Ser Thr Ser Ala Ile Asp Asn Asn Thr Asp Ser Thr  
 1075 1080 1085  
 Lys Thr Ala Gln Val Gln Val Lys Gln Trp Ala Ser Gly Arg Tyr Asp  
 1090 1095 1100  
 Val Ile Gly Glu Asp Asp Gly Arg Thr Tyr Arg Asp Val Pro Tyr Ile  
 1105 1110 1115 1120  
 Gly Asp Ser Pro Thr Gly Ile Val Arg Arg Thr Ser Leu Ile Ser Glu  
 1125 1130 1135  
 Ser Gly Ala Glu Leu Ile Ile Asn Ala Glu Asp Leu Ser Arg Leu Gln  
 1140 1145 1150  
 His His Ile Asn Tyr Pro Ile Val Val Gln Ala Ile Gln Asp Ala Arg  
 1155 1160 1165  
 Ser Gly Arg Val Pro Gln Arg Ala Glu Gly Asn Tyr Asp Pro Ile Arg  
 1170 1175 1180  
 Asn Ser Ile Ser Arg Thr Ser Gln Thr Thr Ser Ser Pro Thr Asp Lys  
 1185 1190 1195 1200  
 Glu Ala Asn Leu Ala Gln Leu Ile Lys Glu Leu His Ala Leu Ile Glu  
 1205 1210 1215  
 Lys Leu Lys Tyr Leu Lys Ala Tyr Val Val Leu Arg Glu Leu Asn Glu  
 1220 1225 1230  
 Ala Gln Glu Leu Ala Asp Lys Ser Lys Glu Pro Phe Thr Arg Lys Lys  
 1235 1240 1245  
 Gln

&lt;210&gt; 5585

&lt;211&gt; 153

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5585

Thr Met Glu Thr Leu Thr Ala Leu Gln Trp Ala Lys Lys Gly Phe Ile  
 1 5 10 15  
 Pro Asn Glu Gly Val Lys Gly Thr Glu Gln Trp Thr Asn Cys Tyr Tyr  
 20 25 30  
 Ser Ala Lys Ala Val Tyr Phe Lys Asp Ser Glu Val His Glu Asp Lys  
 35 40 45  
 Asp Ala Ala Lys Ala Ile Leu Ser Ala Lys Arg Lys Glu Tyr Arg Asp  
 50 55 60  
 Ala Ala Lys Lys Arg Glu Lys Arg Lys Lys Asn Ala Ala Tyr Arg  
 65 70 75 80  
 Glu Lys Met Lys Thr Arg Trp Gln Trp Leu Gln Glu Gly Arg Ile Pro  
 85 90 95  
 Asn Asp Asn Ala Arg Trp Lys Val Gly Glu Glu Leu Asn Lys Thr Phe  
 100 105 110  
 Cys Thr Cys Ala Tyr Gly Ser Asn Tyr Cys Tyr Cys His Glu Arg Tyr  
 115 120 125  
 Thr His Glu Pro Lys Asn Asp Glu Glu Met Gln Lys Ala Ile Phe Asp  
 130 135 140  
 Phe His Lys Asn Gly Asn Ser Trp Val  
 145 150

&lt;210&gt; 5586

&lt;211&gt; 365

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5586

Arg Leu Met Thr Lys Leu Ile Arg Thr Phe His Pro Val Gly His Gly  
 1 5 10 15  
 Ala Phe Tyr Thr Glu Lys His Val Leu Glu Asp Gln Thr Ile Asn Ile  
 20 25 30  
 Val Tyr Asp Cys Gly Ser Lys Thr Leu Glu Lys Gln Leu Pro Ser Ile  
 35 40 45  
 Ile Asn Asn Thr Phe Lys Lys Gly Glu Glu Ile Glu Phe Leu Phe Ile  
 50 55 60  
 Ser His Phe Asp Ala Asp His Val Asn Gly Ile Glu Tyr Leu Lys Thr  
 65 70 75 80  
 Tyr Cys Lys Ile Lys Lys Val Val Ile Pro Leu Ile Glu Asp Lys Asp  
 85 90 95  
 Ala Ile Leu Ile Lys Lys Ala Ile Asn Thr Ser Lys Ile Gly Ser Asn  
 100 105 110  
 Lys Leu Asp Thr Leu Ile Asp Ser Pro Glu Glu Tyr Phe Pro Gly Ser  
 115 120 125  
 Glu Ile Ile Lys Val Lys Ala Val Asn Glu Gly Tyr Asp Asp Asp Arg  
 130 135 140  
 Tyr Phe Ala Asn Asp Leu Asn Asn Gly Gly Thr Ile Pro Ser Gly Ser  
 145 150 155 160  
 Glu Ile Ile Leu His Lys Ser Ser Ala Glu Asn Lys Trp Cys Phe Ile  
 165 170 175  
 Pro Phe Asn Tyr Asn Tyr Thr Glu Arg Val Asn Leu Phe Lys Asp Lys  
 180 185 190  
 Ile Lys Glu Lys Gly Leu Ile Phe Asn Lys Leu Asn Asn Ile Asp Tyr  
 195 200 205  
 Val Gln Ile Ser Gln Lys Thr Ile Lys Ser Ile Tyr Lys Ala Ile Lys  
 210 215 220  
 Gly Lys Ala Asn Gly Asn Ser Leu Val Val Phe Ser Gly Gly Asp Tyr  
 225 230 235 240

Ala Ile Ser Ala Thr His Tyr Phe Ser Thr Asp Lys Lys Ile Val Leu  
                           245                          250                          255  
 Glu Tyr Asp Arg Cys Ser Tyr Ile Ser Cys Ile Tyr Leu Gly Asp Ser  
                           260                          265                          270  
 Phe Ala Asn Lys Ser Asp Phe Tyr Ser Gln Leu Lys Gly Arg Leu Asp  
                           275                          280                          285  
 Lys Leu Thr Glu Ser Ile Gly Ile Ile Gln Ile Ala His His Gly Ala  
                           290                          295                          300  
 Lys Gly Asn Phe Ser Pro Asn Ile Leu Lys Leu Gly Thr Asn Pro Leu  
 305                          310                          315                          320  
 Ala Ile Ile Ser Cys Lys Ser Thr Asp Lys His His Pro Ser Val Asn  
                           325                          330                          335  
 Val Val Lys Gln Ile Gln Glu Asn Gly Ser Ile Pro Phe Ile Val Thr  
                           340                          345                          350  
 Glu Lys Pro Thr Thr Glu Val Glu Gln Ile Gly Tyr Tyr  
                           355                          360                          365

&lt;210&gt; 5587

&lt;211&gt; 116

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5587

Leu Phe Tyr Phe Thr Leu Phe Ser Thr Glu Ser Val Glu Ser Arg Ser  
 1                          5                          10                          15  
 Asn Leu Lys Leu Leu Phe Leu Asn Leu Phe Ile Asn Phe Tyr Phe  
                           20                          25                          30  
 Phe Tyr Phe Met Asn Met Tyr Ile Gly Asn Leu Ser Tyr Arg Val Lys  
                           35                          40                          45  
 Glu Ala Asp Leu Arg Gln Val Met Glu Glu Tyr Gly Thr Val Asp Ser  
                           50                          55                          60  
 Val Lys Leu Ile Ile Asp Arg Glu Thr Arg Lys Ser Lys Gly Phe Ala  
 65                          70                          75                          80  
 Phe Val Glu Met Pro Asn Asp Asp Glu Ala Lys Asn Val Ile Ser Glu  
                           85                          90                          95  
 Leu Asn Gly Ala Glu Tyr Glu Gly Arg Gln Met Val Val Lys Glu Ala  
                           100                          105                          110  
 Leu Pro Arg Asn  
                           115

&lt;210&gt; 5588

&lt;211&gt; 432

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5588

Lys Asn Ile Ala Lys Val Ser Phe Ile Phe Ile Thr Gly Gln Leu Ser  
 1                          5                          10                          15  
 Tyr Asn Phe Ile Pro Leu His Phe Ile Thr Thr Ile Lys Ser Met Arg  
                           20                          25                          30  
 Lys Phe Ile Ile Ser Phe Cys Cys Tyr Val Phe Phe Ile Phe Thr Leu  
                           35                          40                          45  
 Ala Ala Gln Asp Lys Ala Pro His Tyr Thr Val Ile Val Ser Leu Asp  
                           50                          55                          60  
 Ala Phe Arg Trp Asp Tyr Pro Ala Met Tyr Asp Thr Pro Asn Leu Asn  
 65                          70                          75                          80  
 Gln Met Ala Arg Glu Gly Val Lys Ala Thr Met Leu Pro Ser Tyr Pro  
                           85                          90                          95  
 Ala Ser Thr Phe Pro Asn His Tyr Thr Leu Ala Thr Gly Leu Val Pro

11.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 12.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 13.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 14.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 15.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 16.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 17.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 18.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 19.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 20.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$

<213> B.fragilis

Tyr 1	Ile	Tyr	Phe 5	Met	Thr	Arg	Asn	Glu	Gln 10	Leu	Glu	Lys	Trp	Leu 15	Ser
Asn	Arg	Gln	Arg 20	Arg	Tyr	Ala	Asp	Gly 25	Met	Glu	Leu	Phe	Asn 30	Ala	Leu
Ala	Lys	Ala 35	Asn	Thr	Lys	Ser	Ser 40	Tyr	Gly	Asn	Tyr	Leu 45	Ser	Gln	Ala
Pro 50	Glu	Asn	Pro	His	Ile	Phe 55	Asp	Pro	His	Phe 60	Thr	Gln	Leu	Val	Asn
Ile 65	Leu	Thr	Lys	Ile	Ala 70	Arg	Glu	Ile	Lys	Asp 75	Ala	Pro	Ser	Val	Tyr 80
Pro	Ala	Ala	Phe	Glu	Glu	Ile	Leu	Ile	Val	Gln	Thr	Leu	Asn	Asp	Glu

85 90 95  
 Gln Arg Thr Gln Glu Thr Asp Ile Arg Thr Glu Ala Ile Asp Arg Leu  
 100 105 110  
 Gln Glu Glu Ile Asp Gly Leu His Asn Arg Ile Ser Glu Leu Glu Ser  
 115 120 125  
 Asp Thr Glu Asn His Ala Asp Glu Leu Ser Ala Leu Asn Glu Glu Phe  
 130 135 140  
 Glu Glu Lys Met Lys Glu Leu Ser Ala Ile Arg Gly Glu Leu Asp Ala  
 145 150 155 160  
 Leu Asn Thr Pro Gly Val Lys Ile Val Thr Glu Glu Ser Leu Thr Pro  
 165 170 175  
 Ala Leu Arg Lys Ala Tyr Ala Arg Ile Lys Glu Ile Ala Pro Leu Tyr  
 180 185 190  
 Ala Ser Leu His Asn Asp Ile Ala Asn Pro Asp Ile Pro Ala Glu Glu  
 195 200 205  
 Arg His Pro Leu Ala Glu Glu Leu Cys Lys Leu Asp Asp Glu Arg Arg  
 210 215 220  
 Lys Leu Trp Lys Gln Ile Asp Asp Tyr Ala Glu Gly Lys Gln Ala Thr  
 225 230 235 240  
 Leu Glu Leu Asp Ala Lys Arg Pro Glu Tyr Ser Glu Asn Ala Val Val  
 245 250 255  
 Arg Gly Phe Glu Ile Ala Arg Gln Ile Lys Arg Leu Lys Gln Asn Ile  
 260 265 270  
 Thr Asn Ser Lys Thr Ala Ala Glu Arg Ala Gly Lys Glu Gly Lys Gln  
 275 280 285  
 Ala Val Leu Gln Asn Ala Leu Asp Arg Ile Ala Lys Tyr Glu Thr Glu  
 290 295 300  
 Leu Ala Ala Leu Thr Ala Glu Leu Ser Ala Glu Gln Gly Glu Lys Val  
 305 310 315 320  
 Ser Gly

<210> 5590

<211> 63

<212> PRT

<213> B.fragilis

<400> 5590

Phe Ala Ile Ala Gln Val Gly Thr Phe Ile Arg Pro Arg Tyr Ala Ser  
 1 5 10 15  
 Ala Tyr Arg Gly Phe Val Phe Trp Gly Arg Ser Pro Phe Thr Pro Phe  
 20 25 30  
 Cys Leu Glu Glu Arg Phe Glu Gln Leu Tyr Leu Arg Arg Ser Lys Ala  
 35 40 45  
 Gly Asn Lys Val Ser Ile Tyr Tyr Phe Tyr Phe Phe Phe Leu Leu  
 50 55 60

<210> 5591

<211> 574

<212> PRT

<213> B.fragilis

<400> 5591

Gly Met Thr Ala Gln Ala Ser Pro Ile Pro Ser Ala Tyr Glu Leu Arg  
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 Met Lys Gln Ala Asn Val Ile Arg Lys Phe Phe Asn Lys Met Gln Arg  
 20 25 30  
 Gln Ala Met Ala Ile Ala Ala His Asp Glu Tyr Ile Val Ala Ser Arg  
 35 40 45

Gly	Thr	Gly	Lys	Ser	Glu	Gly	Ile	Asp	Ala	Arg	Phe	Ile	Leu	Arg	Asn
50						55					60				
Val	Trp	Glu	Met	Pro	Gly	Ser	Leu	Gly	Gly	Met	Ile	Ser	Pro	Ser	Tyr
65					70					75					80
Ala	Lys	Ala	Trp	Gly	Asn	Thr	Leu	Pro	Ala	Ile	Cys	Lys	Ala	Leu	Ala
				85					90					95	
Glu	Trp	Gly	Tyr	Ile	Gln	Asn	Ile	His	Tyr	Val	Val	Gly	His	Lys	Ala
			100					105					110		
Pro	Pro	Ser	Met	Gly	Phe	Ala	Lys	Pro	Val	Arg	Pro	Val	Leu	Gly	Asp
		115					120					125			
Gly	Trp	Ser	Asn	Ala	Phe	His	Phe	Trp	Asn	Gly	Thr	Val	Met	Val	Ile
130						135					140				
Leu	Ser	Phe	Asn	Gln	Gly	Met	Ser	Ala	Asn	Ser	Met	Ser	Leu	Asp	Trp
145					150					155					160
Val	Ile	Gly	Pro	Glu	Ala	Lys	Phe	Leu	Ser	Tyr	Asp	Lys	Ile	Lys	Asn
				165					170					175	
Glu	Val	Asn	Pro	Ala	Asn	Arg	Gly	Asn	Arg	Gln	Tyr	Phe	Gly	His	Cys
			180					185					190		
Pro	His	His	His	Ser	Val	Cys	Tyr	Ser	Thr	Asp	Met	Pro	Gly	Ser	Ser
		195					200					205			
Met	Gly	Arg	Trp	Ile	Leu	Asp	Lys	Gln	Glu	Glu	Met	Gln	Pro	Pro	His
210						215					220				
Ile	Gln	Leu	Ile	Arg	Asn	Leu	Tyr	Lys	Glu	Leu	Gln	Asp	Tyr	Lys	Arg
225					230					235					240
Lys	Pro	Leu	Thr	Glu	His	Thr	Met	Arg	Met	Ile	Arg	Glu	Leu	Gln	Arg
				245					250					255	
Asp	Leu	Asp	Ile	Ala	Arg	Lys	Phe	Gln	Pro	Ala	Leu	Lys	Pro	Asn	Asp
			260					265					270		
Lys	Lys	Lys	Arg	Glu	Tyr	Thr	Val	Phe	Tyr	Gly	Glu	Tyr	Asp	Val	Phe
		275					280					285			
Asp	Asn	Leu	Glu	Val	Leu	Gly	Glu	Asp	Phe	Ile	Trp	Gln	Met	Gln	Arg
290						295					300				
Asp	Ser	Pro	Pro	Leu	Val	Trp	Arg	Thr	Ala	Phe	Leu	Asn	Glu	Arg	Leu
305				310						315					320
Met	Lys	Val	Pro	Asn	Gly	Phe	Tyr	Ser	Ala	Leu	Asp	Asp	Arg	Ile	His
				325					330					335	
Phe	Tyr	Gln	Pro	Ala	Asp	Asn	Gly	Arg	Leu	Lys	Asn	Leu	Gly	Ser	Asn
			340				345						350		
Trp	Lys	Gln	Leu	Ser	Ser	Cys	Gly	Cys	Leu	Gly	Asp	Gly	Asp	Leu	Asp
		355					360					365			
Phe	Asp	Lys	Glu	Leu	His	Ile	Ala	Phe	Asp	Ser	Asn	Ala	Ser	Ile	Ser
370						375					380				
Thr	Ala	Val	Val	Ala	Gln	Leu	Asp	Gly	Asn	Thr	Met	Lys	Ile	Ile	Lys
385					390					395					400
Ser	Phe	Tyr	Val	Lys	Thr	Pro	Ser	Lys	Leu	Gly	Asp	Leu	Val	Gln	Gln
				405					410					415	
Ile	Ala	Asp	Tyr	Tyr	Arg	Pro	Lys	Leu	Asn	His	Asp	Val	Val	Val	Tyr
			420					425					430		
Tyr	Asp	His	Thr	Phe	Thr	Trp	Glu	Ser	Gly	Ser	Thr	Thr	Glu	Thr	Tyr
		435					440					445			
Ala	Asp	Ile	Ile	Glu	Arg	Val	Phe	Lys	Glu	Asn	Arg	Tyr	Thr	Pro	Ala
450						455					460				
Met	Val	Tyr	Val	Gly	Gln	Ala	Pro	Lys	His	Glu	Trp	Lys	His	Leu	Asn
465					470					475					480
Ile	Asp	Leu	Ala	Leu	Lys	Gly	Asp	Pro	Gln	Phe	Leu	Trp	Ile	Arg	Phe
				485					490					495	
Asn	Leu	Tyr	Gln	Asn	Glu	Phe	Leu	Lys	Ile	Ala	Met	Glu	Gln	Thr	Gly
		500						505					510		
Ile	Lys	Gln	Gly	Lys	Asn	Gly	Phe	Glu	Lys	Asp	Lys	Ala	Pro	Glu	Gly

50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510

515                      520                      525  
 Thr Asp Asp Thr Pro Asp Asn Pro Asp Gln Tyr Lys Thr His Val Thr  
 530                      535                      540  
 Asp Ala Phe Asp Thr Leu Trp Leu Gly Met Asn Phe Tyr Phe Thr Arg  
 545                      550                      555                      560  
 Pro Gly Thr Gly Thr Gly Gly Ile Phe Phe Leu Asn Arg Lys  
                          565                      570

<210> 5592  
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 <212> PRT  
 <213> B.fragilis

<400> 5592

Thr Met Tyr Phe Asn Asp Asp Glu Ile Arg Arg Ile Lys Asp Ala Ala  
 1                      5                      10                      15  
 Thr Gly His Leu Leu Asp Val Ala Gln Asp Phe His Glu Leu Lys Arg  
                          20                      25                      30  
 Ser Gly Val Asn Tyr Asn Cys Asp Cys Pro Arg Cys Lys Ala Ala Lys  
                          35                      40                      45  
 Lys Leu Ser Ile Ser Pro Ala Lys Gln Ile Phe Lys Cys Phe Gly Cys  
                          50                      55                      60  
 Asn Glu Leu Lys Gly Gly Asp Ser Val Ser Phe Leu Met Ser Ala Glu  
 65                      70                      75                      80  
 Gly Met Thr Phe Asn Asp Ala Leu Glu Tyr Leu Ala Lys Lys Phe Asn  
                          85                      90                      95  
 Val Ile Leu Asp Gln Arg Pro Ala Ile Lys Lys Gln Pro Ala Lys Lys  
                          100                      105                      110  
 Met Lys Lys Ser Ser Lys Ala Ala Lys Gly Ile Asp Val Asp Ser Tyr  
                          115                      120                      125  
 Cys Ala Arg Met Leu Ala Glu Ser Gly Leu Thr Phe Glu Asp Val Thr  
                          130                      135                      140  
 Ala Lys Val Tyr Lys Thr Gly Asp Thr Gln Ser Ile Phe Glu Gln Arg  
 145                      150                      155                      160  
 Thr Phe Arg Pro Gly Thr Ile Asp Glu Arg Gly Met Leu Thr Thr Lys  
                          165                      170                      175  
 Gly Asp Asp Val Ile Ile Glu Tyr Tyr Asp Leu Glu Gly Met Pro Val  
                          180                      185                      190  
 Val Phe Thr Arg Lys Asp Asn Lys Arg Arg Asp Val Gly Thr Pro Gln  
                          195                      200                      205  
 Glu Tyr Tyr Arg Ile Arg Trp Gln Phe Pro Asp Ala His Leu Asp Lys  
 210                      215                      220  
 Glu Gly Lys Pro Tyr Lys Tyr Lys Ser Pro Arg Gly Ser Gly Thr Pro  
 225                      230                      235                      240  
 Ile Tyr Ile Pro Glu Arg Ile Arg Ser Leu Tyr Lys Ser Lys Thr Lys  
                          245                      250                      255  
 Ile Pro Arg Leu Tyr Ile Gln Glu Gly Glu Lys Lys Ala Glu Lys Ala  
                          260                      265                      270  
 Cys Lys His Gly Ile Pro Ser Ile Ala Val Ser Gly Ile Gln Asn Leu  
                          275                      280                      285  
 Gly Leu Tyr Gly Ala Leu Pro Glu Asp Leu Val Lys Ile Ile Ser Thr  
                          290                      295                      300  
 Cys Glu Val Gln Glu Val Ala Phe Ile Phe Asp Ser Asp Trp Asp Asp  
 305                      310                      315                      320  
 Ile Ser Ser Asn Ile Arg Ile Asn Asp Gln Val Glu Lys Arg Pro Arg  
                          325                      330                      335  
 Cys Phe Phe Tyr Ala Ala Lys Asn Phe Lys Glu Tyr Met Arg Ser Leu  
                          340                      345                      350  
 Lys Asn Arg Asn Ile Phe Val Glu Ile Phe Val Gly His Ile Asn Lys

355	360	365
Asn Glu Ala Gly Asp Lys Gly Leu Asp Asp Leu Leu Ala Asn Ser Leu		
370	375	380
Arg Gly Lys Glu Glu Glu Leu Ala Ala Asp Ile Glu Phe Ala Cys Asn		
385	390	395
Glu Lys Lys Gly Leu Gly Lys Tyr Ile Glu Met Phe Lys Val Thr Thr		
405	410	415
Trp Thr Asp His Lys Leu Gln Glu Leu Trp Gly Leu His Ser His Glu		
420	425	430
Val Phe Ala Glu Arg His Ala Asp Leu Leu Arg Asn Leu Pro Glu Phe		
435	440	445
Leu Phe Gly Arg Tyr Arg Trp Lys Phe Asp Glu His Gly Lys Val Ile		
450	455	460
Leu Ala Gln Pro Phe Asp Asp Asp Glu Lys Phe Trp Arg Glu Val Thr		
465	470	475
Lys Tyr Asp Arg Ser Gln Asn Glu Arg Ile Glu Tyr Glu Phe Cys Tyr		
485	490	495
Val Asn Ser Gln Asn Phe Leu Gln Asn Arg Gly Phe Gly Arg Leu Arg		
500	505	510
Arg Ile Asp Lys Ser Tyr Gln Phe Ile His Leu Glu Pro Pro Val Val		
515	520	525
Arg Ala Ile Asp Ala Ser Asp Ala Arg Asp Tyr Leu Phe Gln Phe Ala		
530	535	540
Lys His Asn Cys Lys Thr Glu Val Asn Glu Met Leu Ile Lys Gly Val		
545	550	555
Ser Gln Tyr Val Gly Pro Asp Lys Leu Ser Leu Leu Glu Phe Ile Gln		
565	570	575
Pro Asn Phe Val Lys Pro Asn Arg Glu Ser Gln Tyr Phe Tyr Phe Asp		
580	585	590
Lys Asn Cys Trp Leu Val Thr Lys Asp Ser Val Ser Glu Leu Gly Tyr		
595	600	605
Glu Asn Ile Thr His His Ile Trp Glu Glu Gln Arg Lys Met Thr Pro		
610	615	620
Ala Lys Tyr Leu Gly Lys Pro Leu Val Thr Phe Ser Arg Gln Asp Asn		
625	630	635
Thr Phe Thr Tyr Glu Leu Ser Glu Ala Gly Lys Lys Ser His Tyr Leu		
645	650	655
Gln Phe Leu Ile Asn Thr Ser Asn Phe Thr Trp Arg Lys Ser Ala Glu		
660	665	670
Glu Ile Glu Pro Glu Glu Glu Asn Glu Asn Arg Ile His Leu Leu Ser		
675	680	685
Lys Leu Cys Ala Ile Gly Tyr Met Val Met Glu Ala Lys Asp Asn Asn		
690	695	700
Val Ala Arg Ala Val Ile Gly Met Asp Gly Lys Gln Ser Glu Val Gly		
705	710	715
Glu Ser Asn Gly Arg Ser Gly Lys Ser Leu Val Gly Glu Leu Met Arg		
725	730	735
Asn Ile Ile Pro Thr Ala Tyr Ile Pro Gly Lys Arg Ser Asp Leu Phe		
740	745	750
Asn Asp Gln Phe Val Trp Asn Asp Ile Gln Glu Asn Thr Lys Leu Val		
755	760	765
Phe Ile Asp Asp Val Leu Gln Asn Phe Asn Phe Glu Phe Leu Phe Pro		
770	775	780
Asn Ile Thr Gly Asp Trp Ser Val Asn Tyr Lys Gly Gly Arg Arg Ile		
785	790	795
Thr Leu Pro Phe Ala Arg Ser Pro Lys Met Tyr Ile Ala Thr Asn His		
805	810	815
Ala Ile Arg Gly Ser Gly Ser Ser Tyr Thr Asp Arg Gln Trp Leu Leu		
820	825	830

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Ala Phe Ser Asp Phe Tyr Asn Asp Thr His Lys Pro Val Asp Asp Phe  
835 840 845  
Gly Val Leu Phe Phe Ser Glu Trp Asp Phe Glu Gln Trp Asn Leu Thr  
850 855 860  
Trp Asn Leu Leu Ala Asn Cys Val Gln Leu Tyr Leu Thr Tyr Gly Val  
865 870 875 880  
Val Gln Ala Pro Gly Glu Arg Leu Glu Gln Arg Lys Leu Arg Gln Glu  
885 890 895  
Met Gly Glu Thr Leu Ile Ser Trp Ala Asp Glu Tyr Phe Ser Gly Glu  
900 905 910  
Glu His Leu Asn Val Arg Leu Pro Arg Lys Asp Leu Tyr Asp Ala Phe  
915 920 925  
Cys Gln Tyr Asp Asn Gln Gln Arg Lys Phe Val Ser Pro Thr Ala Phe  
930 935 940  
Lys Lys Lys Phe Ile Met Tyr Cys Ser Trp Lys Gly Tyr Val Phe Asn  
945 950 955 960  
Pro His Lys Tyr Asp Ser Ile Thr Gly Lys Pro Phe Gln Val Asp Lys  
965 970 975  
Asp Gly Lys Ala Val Val Asp Asp Lys Ser Gly Gly Val Glu Tyr Phe  
980 985 990  
Thr Val Gly Thr Gly Ala Gln Pro Ile Pro Lys Glu Asp Asn Ser Arg  
995 1000 1005  
Leu Pro Gln Pro Thr Gly Lys Leu Val Phe  
1010 1015

&lt;210&gt; 5593

&lt;211&gt; 279

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5593

Lys Leu Pro Ala Ile Cys Ile Lys Lys Lys Arg Ile Met Lys Ile Arg  
1 5 10 15  
Phe Ile Ser Leu Ala Ser Gly Ser Ser Gly Asn Cys Tyr Tyr Leu Gly  
20 25 30  
Thr Glu Lys Tyr Gly Ile Leu Ile Asp Ala Gly Ile Gly Ile Arg Thr  
35 40 45  
Ile Lys Lys Ser Leu Lys Asp Ile Asn Val Thr Met Asp Ser Ile Arg  
50 55 60  
Ala Val Phe Ile Thr His Asp His Ala Asp His Ile Lys Ala Val Gly  
65 70 75 80  
His Leu Gly Glu Lys Leu Asn Ile Pro Val Tyr Thr Thr Ala Arg Val  
85 90 95  
His Ala Gly Ile Asn Lys Ser Tyr Cys Met Thr Glu Lys Leu His Gly  
100 105 110  
Ser Val Arg Tyr Leu Glu Lys Glu Glu Pro Met Gln Leu Glu Asp Phe  
115 120 125  
Arg Ile Glu Ser Phe Glu Val Pro His Asp Gly Thr Asp Asn Val Gly  
130 135 140  
Tyr Cys Ile Glu Ile Asp Gly Lys Val Phe Ser Phe Leu Thr Asp Leu  
145 150 155 160  
Gly Glu Ile Thr Pro Thr Ala Ala Arg Tyr Ile Cys Lys Ala His Tyr  
165 170 175  
Leu Ile Ile Glu Ala Asn Tyr Asp Glu Met Leu Arg Met Gly Pro  
180 185 190  
Tyr Pro Thr Tyr Leu Lys Glu Arg Ile Ser Ser Lys Thr Gly His Met  
195 200 205  
Ser Asn Ile Asp Thr Ala Asn Phe Leu Ala Glu Asn Ile Met Glu His  
210 215 220

Leu Arg Tyr Ile Trp Leu Cys His Leu Ser Lys Asp Asn Asn His Pro  
 225 230 235 240  
 Glu Leu Ala Tyr Lys Thr Val Glu Trp Lys Leu Lys Ser Lys Gly Ile  
 245 250 255  
 Ile Val Gly Lys Asp Val Gln Leu Leu Ala Leu Lys Arg Asn Thr Pro  
 260 265 270  
 Ser Glu Leu Tyr Glu Phe Glu  
 275

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 <211> 113  
 <212> PRT  
 <213> B.fragilis

<400> 5594  
 Cys Lys Glu Ala Tyr Gln Cys Lys Ile Ile Glu Ala Gly Phe Asp Ser  
 1 5 10 15  
 Arg Lys Pro Thr Leu Ile Leu Ile Ile Met Lys Thr Val His Ser Ser  
 20 25 30  
 Pro Ser Leu Ser Pro Ser Gly Thr Lys Arg Gln Lys Ala Asn Leu Phe  
 35 40 45  
 Thr Asn Glu Asn Pro Glu Thr Ile Ala Gln Met Arg Met Gln Ser Ala  
 50 55 60  
 Gln Lys Glu Gln His Lys Val Met Val Arg Leu Asp Asn Arg Thr His  
 65 70 75 80  
 Val Leu Val Ala Pro Gln Asn Val Thr Pro Glu Tyr Ile Glu Met Leu  
 85 90 95  
 Arg Lys Lys Tyr Gln Ile Thr Tyr Asn Ala Pro Ala Arg Gly Gly Arg  
 100 105 110  
 Arg

<210> 5595  
 <211> 73  
 <212> PRT  
 <213> B.fragilis

<400> 5595  
 Ile Arg His Phe Val His Val Leu Thr Glu Val Thr Ile Val Ile Ala  
 1 5 10 15  
 Met Arg Asp Ile Pro Met Asn Leu Lys Met Met Lys Arg Cys Lys Lys  
 20 25 30  
 Leu Phe Leu Ile Phe Ile Arg Thr Glu Ile Ala Gly Tyr Asp Tyr Lys  
 35 40 45  
 Gln Asp Gln Lys Gly Ser Asn Met Lys Leu Arg Lys Lys Glu Leu Lys  
 50 55 60  
 Tyr Gly Ile Arg Asn Tyr Lys Asn Arg  
 65 70

<210> 5596  
 <211> 359  
 <212> PRT  
 <213> B.fragilis

<400> 5596  
 Ser Val Asn Phe Ala His Met Ile Glu Leu Ala Gln His Ile Glu Val  
 1 5 10 15  
 Leu Leu Leu Glu Asn Asp Cys Val Ile Val Pro Gly Phe Gly Gly Phe  
 20 25 30

Ile Ala His Tyr Ala Pro Ala Met Arg Val Ala Glu Glu Asn Leu Phe  
 35 40 45  
 Leu Pro Pro Thr Arg Thr Ile Gly Phe Asn Pro Gln Leu Thr Leu Asn  
 50 55 60  
 Asp Gly Val Leu Val Gln Ser Tyr Met Ala Val Tyr Asp Thr Asn Phe  
 65 70 75 80  
 Ser Asp Ala Thr Lys Met Val Glu Lys Glu Val Ala Glu Leu Ile Ser  
 85 90 95  
 Ala Leu His Glu Asp Gly Lys Thr Asp Leu Pro Asn Ile Gly Glu Ile  
 100 105 110  
 Arg Tyr Thr Ile His Asn Thr Tyr Glu Phe Val Pro Tyr Asp Asn Lys  
 115 120 125  
 Ile Thr Thr Pro Tyr Leu Tyr Gly Leu Asp Ser Phe Glu Met Lys Glu  
 130 135 140  
 Leu Ser Ala Leu Arg Arg Pro Glu Lys Glu Gln Ile Leu Pro Thr Val  
 145 150 155 160  
 Leu Lys Lys Lys Thr Ser Tyr Glu Phe Arg Ala Asn Trp Ala Phe Leu  
 165 170 175  
 Arg Asn Ala Val Ala Met Ile Ala Ala Val Ala Leu Phe Phe Phe Met  
 180 185 190  
 Ser Thr Pro Val Glu Asn Thr Tyr Ile Glu Lys Gly Asn Tyr Ala Arg  
 195 200 205  
 Leu Leu Pro Thr Asp Leu Phe Glu Lys Ile Glu Lys Gln Ser Val Ala  
 210 215 220  
 Met Thr Pro Val Met Leu Lys Ser Val Asp Ala Ile Pro Gln Thr Lys  
 225 230 235 240  
 Pro Ala Thr Ala Lys Lys Lys Ser Ser Thr Val Arg Lys Ala Ser Val  
 245 250 255  
 Val Lys Pro Val Ala Val Lys Glu Val Lys Val Asn Gln Pro Glu Lys  
 260 265 270  
 Thr Met Lys Ala Thr Glu Thr Lys Val Val Glu Lys Thr Phe Pro Tyr  
 275 280 285  
 His Ile Ile Ile Ala Ser Val Ala Asn Thr Lys Asp Ala Glu Ala Met  
 290 295 300  
 Ala Gly Glu Leu Lys Ala Lys Gly Tyr Thr Gly Ala Arg Val Leu Thr  
 305 310 315 320  
 Gly Asp Gly Lys Ile Arg Val Ser Ile Met Ser Cys Ala Asp Arg Glu  
 325 330 335  
 Asp Ala Asn Arg Gln Leu Leu Lys Leu Arg Glu Asn Glu Ala Tyr Lys  
 340 345 350  
 Asn Ala Trp Met Leu Ala Lys  
 355

&lt;210&gt; 5597

&lt;211&gt; 674

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5597

Tyr Ile Leu Phe Met Glu Lys Thr Leu Asn Leu Ile Lys Asn Asp Pro  
 1 5 10 15  
 Trp Leu Glu Pro Tyr Lys Asp Ala Ile Val Gly Arg Phe Glu His Ala  
 20 25 30  
 Met Asp Lys Lys Ala Glu Leu Thr Asn Gly Gly Lys Ser Thr Leu Ser  
 35 40 45  
 Asp Phe Ala Ser Gly Tyr Leu Tyr Phe Gly Leu His His Thr Asp Lys  
 50 55 60  
 Gly Trp Ile Phe Arg Glu Trp Ala Pro Asn Ala Ser His Ile Tyr Met  
 65 70 75 80

Val	Gly	Thr	Phe	Ser	Asn	Trp	Glu	Glu	Lys	Pro	Ala	Tyr	Lys	Leu	Lys
				85					90					95	
Arg	Leu	Lys	Asn	Gly	Ser	Trp	Glu	Ile	Lys	Leu	Pro	Ile	Asp	Ala	Ile
			100					105					110		
Gln	His	Gly	Asp	Leu	Tyr	Lys	Leu	His	Val	Tyr	Trp	Glu	Gly	Gly	Gln
		115					120					125			
Gly	Glu	Arg	Ile	Pro	Ala	Trp	Ala	Asn	Arg	Val	Val	Gln	Asp	Asp	Asn
	130					135					140				
Thr	Lys	Ile	Phe	Ser	Ala	Gln	Val	Trp	Ala	Pro	Glu	Lys	Pro	Phe	Lys
145				150						155					160
Phe	Lys	Lys	Lys	Thr	Phe	Lys	Pro	Ser	Thr	Asp	Pro	Leu	Leu	Ile	Tyr
				165					170					175	
Glu	Cys	His	Ile	Gly	Met	Ala	Gln	Gln	Glu	Glu	Lys	Val	Gly	Thr	Tyr
			180					185					190		
Asn	Glu	Phe	Arg	Glu	Lys	Ile	Leu	Pro	Arg	Ile	Ala	Lys	Glu	Gly	Tyr
		195					200					205			
Asn	Cys	Ile	Gln	Ile	Met	Ala	Ile	Gln	Glu	His	Pro	Tyr	Tyr	Gly	Ser
	210					215					220				
Phe	Gly	Tyr	His	Val	Ser	Ser	Phe	Phe	Ala	Ala	Ser	Ser	Arg	Phe	Gly
225					230					235					240
Thr	Pro	Glu	Glu	Leu	Lys	Gln	Leu	Ile	Asp	Thr	Ala	His	Gly	Leu	Gly
				245					250					255	
Ile	Ala	Val	Ile	Met	Asp	Ile	Val	His	Ser	His	Ala	Val	Lys	Asn	Glu
			260					265					270		
Val	Glu	Gly	Leu	Gly	Asn	Phe	Ala	Gly	Asp	Pro	Asn	Gln	Tyr	Phe	Tyr
		275					280					285			
Pro	Gly	Gly	Arg	Arg	Glu	His	Pro	Ala	Trp	Asp	Ser	Leu	Cys	Phe	Asp
	290					295					300				
Tyr	Gly	Lys	Asn	Glu	Val	Met	His	Phe	Leu	Leu	Ser	Asn	Cys	Lys	Tyr
305					310					315					320
Trp	Leu	Glu	Glu	Tyr	His	Phe	Asp	Gly	Phe	Arg	Phe	Asp	Gly	Val	Thr
			325						330					335	
Ser	Met	Leu	Tyr	Tyr	Ser	His	Gly	Leu	Gly	Glu	Ala	Phe	Cys	Asn	Tyr
			340					345					350		
Gly	Asp	Tyr	Phe	Asn	Gly	His	Gln	Asp	Asp	Asn	Ala	Ile	Cys	Tyr	Leu
		355					360					365			
Thr	Leu	Ala	Asn	Glu	Leu	Ile	His	Glu	Val	Asn	Pro	Lys	Ala	Ile	Thr
	370					375					380				
Ile	Ala	Glu	Glu	Val	Ser	Gly	Met	Pro	Gly	Leu	Ala	Ala	Lys	Val	Glu
385				390						395					400
Asp	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Arg	Met	Ala	Met	Asn	Ile	Pro	Asp
			405						410					415	
Tyr	Trp	Ile	Lys	Thr	Ile	Lys	Glu	Lys	Ile	Asp	Glu	Asp	Trp	Lys	Pro
			420					425					430		
Ser	Ser	Met	Phe	Tr											

545                      550                      555                      560  
 Met Leu Lys Val Ile Lys Ser Val Lys Asn Ile Gln Gln Thr Pro Val  
                                  565                      570                      575  
 Gln Glu Ile Trp His Asn Asp Gly Asp Gln Val Leu Ala Tyr Gln Arg  
                                  580                      585                      590  
 Lys Asp Leu Val Phe Val Phe Asn Phe Asn Pro Ser Gln Ser Phe Thr  
                                  595                      600                      605  
 Asp Tyr Gly Phe Leu Val Thr Pro Gly Thr Tyr Glu Val Val Leu Asn  
                                  610                      615                      620  
 Thr Asp Asn Ile Ile Tyr Gly Gly Asn Gly Leu Ser Asp Asp Ser Val  
 625                      630                      635                      640  
 Lys His Phe Thr Leu Pro Asp Pro Leu Tyr Lys Lys Glu Lys Lys Glu  
                                  645                      650                      655  
 Trp Leu Lys Leu Tyr Ile Pro Ala Arg Thr Ala Met Val Leu Arg Arg  
                                  660                      665                      670  
 Thr Lys

<210> 5598  
 <211> 381  
 <212> PRT  
 <213> B.fragilis

<400> 5598  
 Arg Met Asn Leu Tyr Leu Lys His Thr Leu Phe Tyr Leu Leu Gly Ile  
 1                      5                      10                      15  
 Ser Tyr Ala Leu Ile Ser Ser Ala Gln Ser Asn Pro Asp Lys Leu Gln  
                                  20                      25                      30  
 Cys Lys Val Thr Gly Arg Met Leu Leu Asp Gly Gly Val Tyr Leu Lys  
                                  35                      40                      45  
 Asn Asp Asn Asn Phe Gly Asn Gly Val Glu Phe Ser Asp Leu Arg Ile  
                                  50                      55                      60  
 Gly Ala Lys Val Ala Tyr Gln Asn Trp Asp Met Lys Leu Glu Ile Gly  
 65                      70                      75                      80  
 Tyr Thr Gly Asn Lys Ala Thr Ile Lys Asp Ala Phe Ala Lys Tyr Thr  
                                  85                      90                      95  
 Tyr Lys Asn His Ser Ile Gln Val Gly Gln Phe Tyr Glu Pro Phe Ser  
                                  100                      105                      110  
 Leu Glu Met Met Cys Ser Thr Phe Asp Ile Arg Phe Asn Gln Ser Pro  
                                  115                      120                      125  
 Gly Ala Val Leu Ala Leu Thr Asn Gly Arg Arg Met Gly Ile Thr Tyr  
                                  130                      135                      140  
 Gly Tyr Arg Asn Lys Arg His Tyr Met Ser Gly Gly Ala Phe Met Asp  
 145                      150                      155                      160  
 Asn Glu Val Asn Asn Leu Lys Lys Ala Ser His Gly Tyr Ala Leu Asp  
                                  165                      170                      175  
 Gly Arg Val Val Tyr Arg Pro Val Leu Asp Ser Lys Lys Leu Ile His  
                                  180                      185                      190  
 Ile Gly Phe Ala Ala Asn Tyr Arg Thr Pro Asn Glu Ser Leu Asn Glu  
                                  195                      200                      205  
 Glu Asp Lys Asn Ile Phe Ile Tyr Lys Ser Pro Gly Val Ser Thr Ile  
                                  210                      215                      220  
 Asp Asn Arg Asn Ile Ala Met Ala Thr Ile Asp His Val Ala Tyr Gln  
 225                      230                      235                      240  
 Ile Lys Phe Gly Thr Glu Leu Leu Val Tyr Tyr His Arg Phe Cys Leu  
                                  245                      250                      255  
 Gln Ser Glu Tyr Ile Arg Thr His Val Glu Arg Asp Asn Ala Phe Lys  
                                  260                      265                      270  
 Asn Tyr Val Ala Gln Gly Ala Tyr Leu Gln Cys Ser Trp Leu Leu Ser

	275					280						285					
Gly	Glu	Thr	Tyr	Leu	Tyr	Asp	Glu	Ser	Val	Ala	Cys	Ala	Gly	Arg	Pro		
	290					295					300						
Glu	Gly	Lys	Ser	Leu	Glu	Val	Cys	Ser	Arg	Phe	Asn	Tyr	Leu	Thr	Leu		
305					310					315					320		
Asn	Asp	Glu	Asp	Ala	Ser	Ile	Trp	Gly	Gly	Glu	Gln	Lys	Asp	Ile	Ser		
				325					330					335			
Ile	Gly	Leu	Asn	Tyr	Tyr	Ile	Asn	Lys	Tyr	Ile	Gly	Ile	Lys	Leu	Asn		
			340					345					350				
Tyr	Ser	Tyr	Leu	Met	Pro	Gly	Ala	Ser	Ile	Lys	Glu	Ile	Ser	Arg	Lys		
		355					360					365					
Asn	Phe	Ser	Val	Phe	Gln	Gly	Arg	Phe	Gln	Phe	Ile	Phe					
	370					375					380						

&lt;210&gt; 5599

&lt;211&gt; 171

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5599

Arg	Gln	Asn	Tyr	Arg	Gln	Asn	Lys	Val	Lys	Arg	Phe	Gln	Asp	Asn	Phe		
1			5						10					15			
Pro	Leu	Ala	Leu	Cys	Pro	Gly	Ser	Ile	Glu	Pro	Phe	Met	His	Lys	Gly		
		20						25					30				
Asp	Trp	Ala	Ile	His	Glu	Val	Leu	Pro	Ser	Leu	Leu	Ser	Glu	Ile	Gly		
		35					40					45					
Pro	Ala	Asp	Ile	Arg	Ile	Ala	Thr	Phe	Ser	Ile	Ser	Glu	Asp	Ser	Leu		
		50				55					60						
Arg	Pro	Leu	Phe	Phe	Leu	Ala	Asp	Asp	Lys	Lys	Ile	Thr	Gly	Leu	Thr		
65					70					75				80			
Leu	Leu	Leu	Asp	Thr	Thr	Val	Lys	Arg	His	Lys	Leu	Asp	Leu	Leu	Leu		
				85					90					95			
Phe	Ala	Ser	Asn	Ile	Thr	Pro	Arg	Ile	Arg	Ile	Asp	Ser	Cys	His	Ala		
			100					105					110				
Lys	Val	Leu	Leu	Val	Glu	Asn	Asp	Lys	Tyr	Gln	Phe	Gly	Ile	Ala	Gly		
		115					120					125					
Ser	Ala	Asn	Leu	Asn	Gln	Asn	His	Arg	Trp	Glu	Asn	Gly	Phe	Tyr	Phe		
	130					135					140						
Thr	Ser	Gly	Lys	His	Phe	Asn	Tyr	Phe	Leu	Glu	Met	Phe	Glu	Gln	Ala		
145				150						155					160		
Tyr	Asn	Gln	Ala	Ile	Ser	Tyr	Glu	Ile	Leu	Glu							
				165					170								

&lt;210&gt; 5600

&lt;211&gt; 193

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5600

Glu	Ile	Asp	Tyr	Tyr	Trp	Gly	Gln	Leu	Ile	Ser	Pro	Gly	Pro	Gln	Ala		
1				5					10					15			
Asn	Asp	Met	Arg	Ile	Gln	Phe	Glu	Ile	Lys	Glu	Lys	Leu	Pro	Asp	Ile		
		20						25					30				
Ile	Gly	Glu	Ile	Leu	Asn	Ser	Glu	Lys	Trp	Met	Thr	Leu	Ile	Lys	Glu		
		35					40					45					
Asp	Ile	Ser	Gly	Arg	Lys	Leu	Val	Val	Ile	Arg	Asp	Gln	Ala	Phe	Asp		
		50				55					60						
Ser	Glu	Ala	Thr	Val	Glu	Ile	Tyr	Ser	Arg	Glu	Val	Thr	Ile	Lys	Thr		
65					70					75					80		

Ala Trp Ser Arg Tyr Thr Tyr Arg Leu Phe Val Leu Gly Asp Cys Val  
                   85                  90                  95  
 Trp Cys Glu Tyr Asn Gly Ala Tyr Arg Gly Leu Leu Glu Gln Lys Leu  
                   100                  105                  110  
 Leu Pro Ser Ile Thr Pro Lys Glu Ser Leu Leu Asp Ser Glu Val Leu  
                   115                  120                  125  
 Asp Ser Ser Leu Tyr Gly His Glu Lys Lys Lys Leu Arg Glu Tyr Ala  
                   130                  135                  140  
 Glu Asp Asn Leu Lys Leu Lys Lys Phe Arg Arg Glu Asn Phe Asn Glu  
                   145                  150                  155                  160  
 Asn Arg Thr Gly Val Ala Pro Phe Asp His Pro Lys Lys Val Tyr Asp  
                   165                  170                  175  
 Glu Phe Ile Lys Glu Asp Tyr Ile Ala Pro Ser Ser Lys Glu Asn Asn  
                   180                  185                  190  
 Lys

<210> 5601  
 <211> 408  
 <212> PRT  
 <213> B.fragilis

<400> 5601  
 Gly Ile Asp Tyr Met Val Gln Ser Gln Thr Gln Pro Ile Arg Arg Ile  
   1                  5                  10                  15  
 Ala Phe Pro Ile Leu Ile Ala Leu Ser Val Ser His Cys Leu Asn Asp  
                   20                  25                  30  
 Leu Leu Gln Ser Val Ile Ser Ala Val Tyr Pro Leu Phe Lys Glu Asp  
                   35                  40                  45  
 Leu Ser Leu Ser Phe Ala Gln Ile Gly Leu Ile Thr Leu Val Tyr Gln  
                   50                  55                  60  
 Met Ser Ala Ser Val Phe Gln Pro Leu Thr Gly Leu Ile Phe Asp Lys  
   65                  70                  75                  80  
 Arg Pro Ile Ala Trp Ser Leu Pro Ile Gly Met Ser Phe Thr Leu Ile  
                   85                  90                  95  
 Gly Met Leu Asn Leu Ala Phe Ala Ser Asn Leu Asn Trp Leu Leu Ala  
                   100                  105                  110  
 Ser Val Phe Ile Ile Gly Ile Gly Ser Ser Val Leu His Pro Glu Ala  
                   115                  120                  125  
 Ser Arg Ile Thr Phe Leu Ala Ser Gly Gly Lys Arg Gly Leu Ala Gln  
                   130                  135                  140  
 Ser Leu Phe Gln Val Gly Gly Asn Leu Gly Gly Ser Leu Gly Pro Leu  
   145                  150                  155                  160  
 Leu Val Ala Leu Leu Val Ala Pro Tyr Gly Arg His His Ile Ala Leu  
                   165                  170                  175  
 Phe Ala Ile Leu Ala Leu Ala Ala Ile Cys Val Met Phe Pro Ile Cys  
                   180                  185                  190  
 Arg Trp Tyr Arg Ser Tyr Leu Asn His Leu Lys Lys Arg Pro Ile His  
                   195                  200                  205  
 Ala Lys Ala Tyr Ile Glu Arg Pro Leu Pro Pro Gln Lys Thr Val Phe  
                   210                  215                  220  
 Ala Ile Thr Ile Leu Met Ile Leu Ile Phe Ser Lys Tyr Ile Tyr Met  
   225                  230                  235                  240  
 Ala Ser Leu Asn Ser Tyr Tyr Thr Phe Tyr Leu Ile His Lys Phe Asn  
                   245                  250                  255  
 Val Ser Ile Gln Ser Gln Leu Phe Leu Phe Val Phe Leu Val Ala  
                   260                  265                  270  
 Thr Ala Ile Gly Thr Leu Met Gly Gly Pro Ile Gly Asp Lys Ile Gly  
                   275                  280                  285

Arg Lys Tyr Val Ile Trp Gly Ser Ile Leu Gly Thr Ala Pro Phe Ser  
 290 295 300  
 Leu Leu Met Pro His Ala Gly Leu Val Trp Thr Ile Ile Leu Ser Phe  
 305 310 315 320  
 Cys Val Gly Leu Met Leu Ser Ser Ala Phe Pro Ala Ile Leu Leu Tyr  
 325 330 335  
 Ala Gln Glu Leu Leu Pro Asn Lys Leu Gly Leu Ile Ser Gly Leu Phe  
 340 345 350  
 Phe Gly Phe Ala Phe Gly Val Ala Gly Ile Ala Ser Ala Val Leu Gly  
 355 360 365  
 Asn Met Ala Asp Lys Phe Gly Ile Asp Ala Val Tyr Asn Val Cys Ala  
 370 375 380  
 Phe Met Pro Leu Leu Gly Leu Val Thr Trp Phe Leu Pro Asp Leu Lys  
 385 390 395 400  
 Lys Val Arg Ser Glu Lys Gln Glu  
 405

<210> 5602

<211> 64

<212> PRT

<213> B.fragilis

<400> 5602

Asp Thr Ile Leu Tyr Gly Arg Asp Gly Thr Ser Lys Gly Glu Leu Leu  
 1 5 10 15  
 Ile Asp Ile Lys Leu Cys Asn Met Val Lys Glu Phe Thr Pro Asp Met  
 20 25 30  
 Ala Asn Ser Met Gln Lys Ile Val Arg Lys Cys Phe Pro Arg Thr Leu  
 35 40 45  
 Gln Ile Val Asn Lys Ile His Val Phe Thr Leu Val Tyr Glu Ala Met  
 50 55 60

<210> 5603

<211> 827

<212> PRT

<213> B.fragilis

<400> 5603

Thr Asn Leu Tyr Glu Met Lys Lys Glu Arg Tyr Leu Arg Glu Met Asp  
 1 5 10 15  
 Asp Gln Asn Asp Asn Ala Phe Ser Leu Ile Ala Asp Phe Asp Gly Asn  
 20 25 30  
 Glu Asp Gln Val Phe Asp Ile Lys Val Gly Glu Thr Leu Pro Val Leu  
 35 40 45  
 Pro Leu Arg Asn Met Val Leu Phe Pro Gly Val Phe Met Pro Val Ser  
 50 55 60  
 Val Gly Arg Lys Ser Ser Leu Arg Leu Val Arg Glu Ala Asp Lys Lys  
 65 70 75 80  
 Lys Ser Tyr Ile Ala Val Val Cys Gln Lys Met Ala Glu Thr Asp Glu  
 85 90 95  
 Pro Ala Phe Glu Asp Leu His Pro Ile Gly Thr Ile Gly Lys Ile Val  
 100 105 110  
 Arg Val Leu Glu Met Pro Asp Gln Thr Thr Thr Val Ile Ile Gln Gly  
 115 120 125  
 Met Lys Arg Leu Glu Leu Lys Asn Ile Thr Glu Thr His Pro Tyr Leu  
 130 135 140  
 Lys Gly Glu Val Asn Ile Val Glu Glu Glu Ile Pro Ser Lys Asp Asp  
 145 150 155 160  
 Lys Glu Phe Gln Ala Leu Val Glu Thr Cys Lys Asp Leu Thr Ile Arg



[illegible]



<210> 5606  
 <211> 231  
 <212> PRT  
 <213> B.fragilis

<400> 5606

Lys Tyr Asp Phe Thr Ile Lys Arg Gly Lys Lys Ile Trp Lys Glu Ser  
 1 5 10 15  
 Leu Asp Gly Ile Ser Gln Ile Asp Ala Phe Pro Val Leu Lys Ala Arg  
 20 25 30  
 Leu Gly Lys Ser Leu Pro Gln Phe Val Tyr Thr Leu Ser Pro Asp Lys  
 35 40 45  
 Gln Thr Ala Thr Leu Gln Ile Met Asn Leu Tyr Gln Leu Pro Gln Leu  
 50 55 60  
 Lys Gln Phe Cys Asp Ser Val Phe Ser Val Ile Asn Arg Glu His Val  
 65 70 75 80  
 Pro Asn Leu Val Ile Asp Val Arg Asn Asn Lys Gly Gly Ser Ser Ala  
 85 90 95  
 Gly Val Asp Met Leu Leu Ser Tyr Leu Ser His Asp Ala Tyr Thr Leu  
 100 105 110  
 Tyr Ile Lys Thr Asp Leu Lys Ile Ser Ser Tyr Ser Lys Arg Tyr Asn  
 115 120 125  
 Glu Gln Lys His Pro Glu Thr Tyr Glu Glu Ile Lys Asn Leu Pro Asp  
 130 135 140  
 Gly Ser Leu Phe Ala Ile Arg Asp Ser Phe Val Glu Gly Asn Arg Asp  
 145 150 155 160  
 Lys Ala Asp Ile Tyr Lys Gly Ser Val Thr Val Leu Val Asn Glu Ser  
 165 170 175  
 Thr Tyr Ser Gly Ala Ser Thr Phe Ala Ser Ala Ile Lys Lys Ser His  
 180 185 190  
 Ala Gly Lys Val Leu Gly Glu Thr Gly Cys Pro Thr Val Tyr Phe Gly  
 195 200 205  
 Asn Tyr Met Ser Phe Thr Leu Pro Asn Ser Arg Leu Glu Tyr Tyr Ile  
 210 215 220  
 Ser Leu Asn Lys Phe Tyr Glu  
 225 230

<210> 5607  
 <211> 183  
 <212> PRT  
 <213> B.fragilis

<400> 5607

Leu Asn Lys Tyr Phe Ile Met Lys Arg Ile Leu Cys Pro Lys Cys Glu  
 1 5 10 15  
 Asn Tyr Leu Ser Phe Asp Glu Thr Lys Tyr Ser Glu Gly Gln Ser Leu  
 20 25 30  
 Val Phe Val Cys Glu His Cys Gly Lys Gln Phe Ser Ile Arg Leu Gly  
 35 40 45  
 Lys Ser Lys Met Lys Ala Pro Arg Lys Glu Glu Lys Leu Asp Glu Asp  
 50 55 60  
 Val Tyr Lys Glu Glu Phe Gly Cys Ile Val Val Ile Glu Asn Val Phe  
 65 70 75 80  
 Gly Phe Lys Gln Val Leu Pro Leu Gln Glu Gly Asp Asn Ile Ile Gly  
 85 90 95  
 Arg Arg Cys Val Gly Thr Asp Ile Asn Thr Pro Ile Glu Thr Gly Asp  
 100 105 110  
 Met Ser Met Asp Arg Arg His Cys Ile Ile Asn Val Lys Arg Asn Arg  
 115 120 125

Gln Gly Lys Leu Val Tyr Thr Leu Arg Asp Ala Pro Ser Leu Thr Gly  
 130 135 140  
 Thr Phe Leu Met Asn Glu Ile Leu Gly Asp Lys Asp Arg Ile Arg Ile  
 145 150 155 160  
 Asp Asp Gly Ala Ile Ile Thr Ile Gly Ala Thr Thr Leu Ile Leu Arg  
 165 170 175  
 Ala Ala Lys Lys Glu Glu Ile  
 180

<210> 5608  
 <211> 69  
 <212> PRT  
 <213> B.fragilis

<400> 5608  
 Glu Arg Arg Tyr Glu Met Gly Arg Ile Lys Glu Glu Ala Trp Val Glu  
 1 5 10 15  
 Lys Cys Thr Val Leu His Glu Gly Lys Ala Thr Pro Asn Ile Tyr Tyr  
 20 25 30  
 Asn Val Phe Ala Asp Gly Glu Gln Leu Cys Glu Ile Ser Tyr Asp Arg  
 35 40 45  
 Leu Ile Ala Ile Arg Asn Leu Ile Asn Gln Ile Glu Lys Glu Lys Lys  
 50 55 60  
 Gly Glu Cys His Glu  
 65

<210> 5609  
 <211> 170  
 <212> PRT  
 <213> B.fragilis

<400> 5609  
 Pro Asn His Leu Met Asp Ile Ile Asp Arg Ile Lys Gln Tyr Leu Asn  
 1 5 10 15  
 His Lys Gly Ile Ser Asp Tyr Arg Phe Glu Lys Thr Leu Ser Leu Ser  
 20 25 30  
 Lys Gly Tyr Ile Asn Lys Ala Lys Asn Pro Thr Ala Asp Ile Leu Met  
 35 40 45  
 Lys Met Cys Gly Ile Tyr Thr Asp Ile Ser Thr Glu Trp Leu Leu Arg  
 50 55 60  
 Gly Glu Gly Glu Met Leu Arg Glu Lys Arg Glu Asp Leu Gly Leu His  
 65 70 75 80  
 Arg Ala Glu Ser Ala Ser Thr Asp Glu Asn Ser Leu Ile Tyr Lys Met  
 85 90 95  
 Tyr Lys Glu Lys Asp Asp Glu Asn Lys Thr Leu Ile Lys Gln Asn Ala  
 100 105 110  
 Val Leu Glu Glu Arg Ile Arg Gln Leu Glu Ala Asp Asn Glu Ser Leu  
 115 120 125  
 Arg Ser Gln Ser Gly Ala Asp Arg Ile Thr Asp Thr Phe Ser Asp Leu  
 130 135 140  
 Pro Leu Val Asp Tyr Glu Glu Asp Tyr Pro Pro Val Glu Arg Pro Ser  
 145 150 155 160  
 Ser Ser Lys His Pro Leu Ala Gly Lys Ala  
 165 170

<210> 5610  
 <211> 192  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5610

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Ile Ser Phe His Met Ile Asp Asn Asn Ile Phe Ser Cys Gly Pro Leu
1          5          10          15
Pro Ser Asn Asp Gly Tyr Thr Trp Thr Ile Val Ser Arg Leu Gly Asp
          20          25          30
Met Leu Asn Glu Ala Glu Ala Leu Phe Gly Glu Arg Asp Lys Arg Tyr
          35          40          45
Thr Ile Leu Gly Ile Glu Leu Ala Asn Ile Lys Gln Pro Gln Ile Trp
          50          55          60
Tyr Pro Asn Asp Cys Asn His Val Ile Ile Gln Val Thr Glu Asp Cys
65          70          75          80
Ser Asn Asn Met Glu Arg Ala Ile Phe Gln Val Ala His Glu Ala Ile
          85          90          95
His Cys Leu Cys Pro Asn Pro Lys Lys Lys Thr Thr Ile Leu Glu Glu
          100          105          110
Gly Leu Ala Thr Tyr Phe Ser Met Tyr Tyr Thr Arg Lys Arg Lys Ile
          115          120          125
Tyr Tyr Asn Ile Asp Asn Leu Gln Tyr Gln Lys Pro Tyr Glu Phe Cys
          130          135          140
Ser Lys Leu Leu Asn Tyr Asp Ser Glu Leu Ile Lys Lys Ala Arg Ile
145          150          155          160
Ile Glu Pro Asp Ile Ser Phe Ile Asn Lys Glu Ile Leu Leu Asn Ile
          165          170          175
Cys Pro Lys Ile Asp His Thr Leu Leu Asp Glu Leu Thr Lys Lys Phe
          180          185          190

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&lt;210&gt; 5611

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5611

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Leu Ile Phe His Leu Val Pro Val Tyr Ala Tyr Lys Val His Leu Leu
1          5          10          15
His Ser Asp Leu Tyr Phe Cys Lys Cys Asn Arg Tyr Tyr Pro Asn Glu
          20          25          30
Gln Ser Val Lys Asn Val Leu Gly Val Phe Asp Lys Val Cys Ile Gly
          35          40          45
Ser Leu Leu Ser Ile Asp Tyr Arg Leu Leu Tyr Thr Leu Ser Phe Leu
          50          55          60
His Ser Leu Leu Val Ala Gly Phe Pro Ile Asp Leu Met Ala Val Arg
65          70          75          80
Leu Ala Lys Lys Gln His Ala Ser Gly Ser Phe Ala Leu Cys Asp Asn
          85          90          95
Pro Asn Tyr Thr Leu Leu Leu Ser Leu Tyr Val Ser Phe Gln
          100          105          110

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&lt;210&gt; 5612

&lt;211&gt; 81

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5612

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Ser Lys His His Ile Cys Asn Met Asn Asp Asp Lys Thr Ile Thr Ala
1          5          10          15
Ala Ile Glu Thr Ser Asn Val Thr Ala Leu Leu Ala Ala Tyr Arg Lys
          20          25          30
Phe Thr Ser Ser Ser Gly Ala Thr Thr Asp Glu Phe Phe Arg Phe Ile

```

35 40 45  
 Thr Thr Pro Thr Pro Glu Arg Glu Glu Phe Leu Ala Leu Tyr Cys Ser  
 50 55 60  
 Ser Thr Ser Ser Val Ser Gly Thr Ile Ile Gln Thr Asn Tyr Asn Ala  
 65 70 75 80  
 Leu

<210> 5613  
 <211> 106  
 <212> PRT  
 <213> B.fragilis

<400> 5613  
 Ser Ser Asn Gln Leu Arg Asn Ile Arg Ile Glu Met Glu Leu Ser Asp  
 1 5 10 15  
 Glu Thr Leu Gln Gln Ile Arg Glu Met Ala Ala Ala Leu Leu Pro Pro  
 20 25 30  
 Ala Glu Ile Ala Ile Leu Ile Ser Leu Pro Ala Gly Glu Arg Ser Tyr  
 35 40 45  
 Phe Cys Asp Ile Cys Arg Asn His His His Ser Pro Ile Tyr Glu Ala  
 50 55 60  
 Tyr His Gln Gly Arg Leu Gln Thr Lys Phe Glu Leu Arg Lys Thr Val  
 65 70 75 80  
 Ile Lys Leu Ala Lys Ala Gly Ser Pro Ala Glu Pro Leu Ala Asp  
 85 90 95  
 Lys Tyr Met Lys Glu Gln Ile Ile Asn Asp  
 100 105

<210> 5614  
 <211> 66  
 <212> PRT  
 <213> B.fragilis

<400> 5614  
 Leu His Asp Gln Phe Cys Phe Ile Asp Ser Gly Ser Asn Glu Thr Ile  
 1 5 10 15  
 Tyr Asn Gly Leu Ala Glu Asp Cys Leu Trp Glu Ile Val Leu Phe Ser  
 20 25 30  
 Asn Gly Phe Val Tyr His Ala Leu Gln Lys Phe Arg Ile Phe Ile Glu  
 35 40 45  
 Glu Lys Asp Phe Asn His Thr Val Leu Tyr Asn Ser His Phe His Leu  
 50 55 60  
 Asn Phe  
 65

<210> 5615  
 <211> 374  
 <212> PRT  
 <213> B.fragilis

<400> 5615  
 Lys Glu Cys Gln Gln Asp Tyr Lys Phe Met Arg Ser Asn Arg Phe Ile  
 1 5 10 15  
 Lys Arg Leu Asp Leu Tyr Ile Ile Lys Phe Leu Gly Thr Tyr Val  
 20 25 30  
 Phe Ala Ile Ala Leu Ile Ile Ser Ile Ala Val Val Phe Asp Phe Asn  
 35 40 45  
 Glu Lys Met Asp Lys Phe Met Glu Arg Ser Ala Pro Trp Ser Ala Ile

50 55 60  
 Ile Phe Asp Tyr Tyr Met Asn Phe Ile Pro Tyr Phe Ala Asn Leu Phe  
 65 70 75 80  
 Ser Pro Leu Phe Val Phe Ile Ala Val Ile Phe Phe Thr Ser Lys Leu  
 85 90 95  
 Ala Glu Asn Ser Glu Ile Ile Ala Met Phe Ser Thr Gly Met Ser Phe  
 100 105 110  
 Lys Arg Met Leu Arg Pro Tyr Met Ile Ser Ala Gly Ile Ile Ala Ile  
 115 120 125  
 Ser Thr Phe Ile Leu Gly Ser Tyr Val Ile Pro Arg Gly Ser Val Thr  
 130 135 140  
 Arg Leu Asp Phe Glu Asp Lys Tyr Val Lys Lys Lys Thr Thr Tyr  
 145 150 155 160  
 Val His Asn Ile Gln Leu Glu Ile Asp Thr Gly Val Ile Ala Tyr Ile  
 165 170 175  
 Asp Asn Tyr Gln Asp Tyr Asn Lys Thr Gly Asn Arg Phe Ser Leu Asp  
 180 185 190  
 Lys Phe Val Asp Lys Lys Leu Val Ser His Leu Thr Ala Arg Ser Ile  
 195 200 205  
 Thr Tyr Asp Thr Thr Ala Val Asn Lys Trp Thr Ile Lys Asp Tyr Met  
 210 215 220  
 Ile Arg Asn Leu Asp Gly Leu Lys Glu Thr Ile Val Arg Gly Asp Lys  
 225 230 235 240  
 Met Asp Ser Ile Ile Pro Met Glu Pro Ala Asp Phe Met Ile Met Arg  
 245 250 255  
 Asn Gln Gln Glu Met Leu Thr Ser Pro Gln Leu Ser Ala Tyr Ile Asp  
 260 265 270  
 Lys Gln Lys Gln Arg Gly Ile Ala Asn Ile Lys Glu Phe Glu Ile Glu  
 275 280 285  
 Tyr His Lys Arg Ile Ala Met Ser Phe Ala Ser Phe Ile Leu Thr Val  
 290 295 300  
 Ile Gly Val Ser Leu Ser Ser Arg Lys Thr Lys Gly Gly Met Gly Leu  
 305 310 315 320  
 His Leu Gly Ile Gly Leu Gly Leu Ser Phe Ser Tyr Ile Leu Phe Gln  
 325 330 335  
 Thr Val Ala Ser Thr Phe Ala Val Asn Gly Asn Met Pro Pro Met Ile  
 340 345 350  
 Ala Met Trp Ile Pro Asn Leu Leu Tyr Ala Leu Ile Ala Phe Tyr Leu  
 355 360 365  
 Tyr Arg Lys Ala Pro Lys  
 370

&lt;210&gt; 5616

&lt;211&gt; 81

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5616

Gly Leu Ser His Leu His Ser Phe Leu Ser Ser Ile Phe Gly Phe Gly  
 1 5 10 15  
 Leu Ala Gly Val Leu Leu Thr Lys Tyr Cys Pro Asp Pro Thr Leu Phe  
 20 25 30  
 Glu Ser Arg Glu Ala Trp Glu Val Ala Ser Val Asn Ala His Tyr Ile  
 35 40 45  
 Trp Tyr Tyr Phe Ala Ala Ile Gly Leu Val Ala Ala Ile Ala Leu Leu  
 50 55 60  
 Ile Phe Ala Lys Ile Thr Asp Phe Ile Asp Lys Lys Lys Thr Asn  
 65 70 75 80  
 Val

[illegible]

Asn	Asn	Asn	Gln	Arg	Met	Met	Asn	Gln	Glu	Leu	Leu	Met	Ser	Pro	Asn
1				5					10					15	
Arg	Leu	Val	Thr	Phe	Leu	Gln	Lys	Pro	Ala	Ala	Glu	Phe	Thr	Lys	Ala
			20					25					30		
Asp	Ile	Ile	Asn	Tyr	Ile	Gln	Gln	Asn	Glu	Ile	Arg	Met	Val	Asn	Phe
		35					40					45			
Met	Tyr	Pro	Ala	Ala	Asp	Gly	Arg	Leu	Lys	Thr	Leu	Asn	Phe	Val	Ile
	50					55					60				
Asn	Asn	Ala	Ser	Tyr	Leu	Asp	Ala	Ile	Leu	Thr	Cys	Gly	Glu	Arg	Val
65					70					75					80
Asp	Gly	Ser	Ser	Leu	Phe	Pro	Phe	Ile	Glu	Ala	Gly	Ser	Ser	Asp	Leu
				85					90					95	
Tyr	Val	Ile	Pro	Arg	Phe	Arg	Thr	Ala	Phe	Val	Asp	Pro	Phe	Ala	Glu
			100					105					110		
Ile	Pro	Thr	Leu	Val	Met	Leu	Cys	Ser	Phe	Phe	Asn	Lys	Asp	Gly	Glu
		115					120					125			
Pro	Leu	Glu	Ser	Ser	Pro	Glu	Tyr	Thr	Leu	His	Lys	Ala	Cys	Lys	Ala
	130					135					140				
Phe	Thr	Asp	Val	Thr	Gly	Met	Glu	Phe	Gln	Ala	Met	Gly	Glu	Leu	Glu
145					150					155					160
Tyr	Tyr	Val	Ile	Ser	Glu	Asp	Asp	Gly	Leu	Phe	Pro	Ala	Thr	Asp	Gln
				165					170					175	
Arg	Gly	Tyr	His	Glu	Ser	Gly	Pro	Tyr	Ala	Lys	Phe	Asn	Asp	Phe	Arg
			180					185					190		
Thr	Gln	Cys	Met	Ser	Tyr	Ile	Ala	Gln	Thr	Gly	Gly	Gln	Ile	Lys	Tyr
		195					200					205			
Gly	His	Ser	Glu	Val	Gly	Asn	Phe	Met	Leu	Asp	Gly	Lys	Val	Tyr	Glu
	210					215					220				
Gln	Asn	Glu	Ile	Glu	Phe	Leu	Pro	Val	Asn	Ala	Glu	Asn	Ala	Ala	Asp
225					230					235					240
Gln	Leu	Met	Ile	Ala	Lys	Trp	Val	Ile	Arg	Asn	Leu	Ala	Tyr	Gln	Tyr
				245					250					255	
Gly	Tyr	Asp	Ile	Thr	Phe	Ala	Pro	Lys	Ile	Thr	Val	Gly	Lys	Ala	Gly
			260					265					270		
Ser	Gly	Leu	His	Ile	His	Met	Arg	Met	Met	Lys	Asp	Gly	Gln	Asn	Gln
	275						280					285			
Met	Leu	Lys	Asp	Gly	Val	Leu	Ser	Asp	Thr	Ala	Arg	Lys	Ala	Ile	Ala
	290					295					300				
Gly	Met	Met	Gln	Leu	Ala	Pro	Ser	Ile	Thr	Ala	Phe	Gly	Asn	Thr	Asn
305					310					315					320
Pro	Thr	Ser	Tyr	Phe	Arg	Leu	Val	Pro	His	Gln	Glu	Ala	Pro	Thr	Asn
				325					330					335	
Val	Cys	Trp	Gly	Asp	Arg	Asn	Arg	Ser	Val	Leu	Val	Arg	Val	Pro	Leu
			340					345					350		
Gly	Trp	Ser	Ala	Gln											



				405					410					415			
Glu	Gln	Thr	Tyr	Val	Asn	Val	Asn	Ile	His	Gln	Lys	Glu	Asn	Ala	Asp		
				420				425					430				
Lys	Leu	Lys	Ala	Leu	Ala	Gln	Leu	Pro	Asp	Ser	Cys	Ala	Ala	Ser	Ala		
				435				440					445				
Asp	Cys	Leu	Gln	Lys	Gln	Arg	Thr	Val	Phe	Glu	Gln	Tyr	Asn	Val	Phe		
				450				455				460					
Ser	Pro	Ala	Met	Ile	Asp	Gly	Ile	Ile	Ser	Arg	Leu	Arg	Ser	Tyr	Asn		
465					470					475					480		
Asp	Ala	Thr	Leu	Arg	Lys	Asp	Ile	Gln	Asp	Lys	Pro	Glu	Glu	Met	Leu		
				485					490						495		
Ala	Leu	Val	Ser	Lys	Phe	Phe	His	Cys	Gly								
				500				505									

&lt;210&gt; 5618

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5618

Asn	Met	Asp	Gln	Leu	Gln	Leu	Ile	Gln	Ser	Lys	Ile	Tyr	Glu	Ile	Arg		
1				5				10						15			
Gly	Gln	Lys	Val	Met	Leu	Asp	Phe	Asp	Leu	Ala	Glu	Met	Tyr	Gly	Thr		
			20					25					30				
Glu	Thr	Lys	Tyr	Leu	Lys	Arg	Ser	Val	Lys	Asn	Asn	Ile	Lys	Arg	Phe		
		35					40					45					
Pro	Ser	Asp	Phe	Met	Phe	Glu	Leu	Thr	Lys	Glu	Glu	Phe	Asp	Ser	Leu		
	50					55					60						
Arg	Cys	Ser	Phe	Ser	Thr	Ser	Lys	Arg	Gly	Gly	Thr	Arg	Tyr	Met	Pro		
65					70					75					80		
Tyr	Ala	Phe	Thr	Glu	His	Gly	Val	Ala	Gln	Leu	Ser	Ser	Val	Leu	Asn		
				85				90						95			
Ser	Asp	Leu	Ala	Ile	Glu	Ile	Asn	Ile	Gln	Ile	Ile	Arg	Ala	Phe	Ile		
			100					105					110				
Ala	Val	Arg	Gln	Leu	Ile	Ser	Asn	Pro	Pro	Val	Asp	Arg	Val	Asp	Lys		
			115					120					125				
Leu	Lys	Glu	Glu	Ile	Lys	Ala	Leu	Lys	Asp	Tyr	Ile	Glu	Glu	Ala	Phe		
		130				135					140						
Thr	Asp	Tyr	Asn	Asp	Ile	Asn	Asp	Asp	Thr	Arg	Met	Gln	Leu	Glu	Leu		
145					150					155					160		
Ile	Asn	Gln	Thr	Leu	Ala	Glu	Leu	Gln	Ala	Lys	Lys	Lys	Ala	Glu	Glu		
				165				170						175			
Lys	Pro	Arg	Asn	Pro	Ile	Gly	Phe	Ile	Lys	Pro	Lys	His					
				180				185									

&lt;210&gt; 5619

&lt;211&gt; 76

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5619

Gln	Lys	Arg	His	Ser	Gly	Ile	Asp	Gln	Ile	Val	Cys	Cys	His	Gln	Val		
1				5				10						15			
Leu	Phe	Phe	Val	Met	Asp	Lys	Thr	Ala	Glu	Gly	Tyr	Asp	Glu	Ser	Thr		
			20					25					30				
Ser	Gln	Tyr	Gly	Ile	Gly	Glu	His	Ile	Asp	Gly	Asp	Met	Gly	Asn	Lys		
		35				40					45						
Pro	Asn	Thr	Leu	Gln	Ser	Arg	His	Lys	Arg	Leu	Val	Met	Tyr	Leu	Arg		
		50				55					60						

Phe Gln Gln Ile Asp Tyr Tyr Lys Asp Ser Gly Gln  
65 70 75

<210> 5620  
<211> 333  
<212> PRT  
<213> B.fragilis

<400> 5620  
Ile Val Lys Gln Arg Ile Met Gln Phe Tyr Ser Arg Asn Glu Ala Ile  
1 5 10 15  
Asn Arg Ile Asn Lys Leu Ala Gly Ala Gly Lys Ala Phe Leu Phe Ile  
20 25 30  
Ile Asp Tyr Lys Gln Glu Cys Ser Phe Ile Glu Lys Val Asp Asp Ile  
35 40 45  
Asp Ser Ser Glu Leu Leu Tyr Asn Leu Asn Gly Phe Thr Asn Cys Thr  
50 55 60  
Ser Val Val Thr Pro Phe Arg Tyr Pro Ile Ile Trp Gln Pro Gln Pro  
65 70 75 80  
Ile Ser Leu Ser Gln Tyr Lys Arg Ser Phe Asp Ile Ile Arg Lys Asn  
85 90 95  
Ile Leu Ser Gly Asn Ser Phe Leu Thr Asn Leu Thr Cys Met Thr Pro  
100 105 110  
Val Asn Thr Asn Leu Gly Leu Lys Asp Ile Phe Tyr His Ser Arg Ala  
115 120 125  
Leu Tyr Lys Leu Trp Leu Lys Glu Thr Phe Val Val Phe Ser Pro Glu  
130 135 140  
Ile Phe Ile Arg Ile Glu Asn Gly Arg Ile Ser Ser Tyr Pro Met Lys  
145 150 155 160  
Gly Thr Ile Asp Ala Thr Leu Pro Ser Ala Thr Arg Leu Leu Met Glu  
165 170 175  
Asp Glu Lys Glu Ala Ala Glu His Ala Thr Ile Val Asp Leu Ile Arg  
180 185 190  
Asn Asp Leu Ser Ile Val Ala Asp Asn Val Ser Val Thr Arg Tyr Arg  
195 200 205  
Tyr Val Asp Thr Leu Tyr Thr Asn His Gly Pro Ile Leu Gln Thr Ser  
210 215 220  
Ser Glu Ile Ser Gly Val Leu Pro Lys Asn Tyr Val Asp His Leu Gly  
225 230 235 240  
Glu Ile Leu Phe Arg Leu Leu Pro Ala Gly Ser Ile Thr Gly Ala Pro  
245 250 255  
Lys Tyr Lys Thr Ile Glu Ile Ile Glu Gln Ala Glu Glu Tyr Glu Arg  
260 265 270  
Gly Phe Tyr Thr Gly Ile Thr Gly Tyr Phe Asp Gly Arg Lys Leu Asp  
275 280 285  
Ser Ala Val Met Ile Arg Phe Ile Glu Glu Gln Asn Gly Gln Ile Phe  
290 295 300  
Phe Lys Ser Gly Gly Gly Ile Thr Cys Lys Ser Asp Leu Glu Asn Glu  
305 310 315 320  
Tyr Asn Glu Met Lys Gln Lys Val Tyr Val Pro Ile Tyr  
325 330

<210> 5621  
<211> 178  
<212> PRT  
<213> B.fragilis

<400> 5621  
Thr Met Lys His His Val His Leu Ile Ile Tyr Phe Ala Cys Ile Ser

1	5	10	15
Val Gly Ile Leu	Leu Cys Ala Cys Arg Ser Ser Ser Leu His Ser Asn		
	20	25	30
Gln Phe Lys Glu	Asn Gly Thr Phe Gln His Asn Tyr Asn Glu Leu Asn		
	35	40	45
Thr Gly Thr Gly Thr	Ile Ala Ser Gln Val Lys Thr Thr Lys Asp Glu		
	50	55	60
His Gly Ser Ser Trp	Lys Ile Thr Tyr His Phe Asp Thr Ala Gln Thr		
65	70	75	80
Pro Asp Pro Thr Thr	Gly Leu Pro Pro Leu Ser Gly Ile Glu Ile Glu		
	85	90	95
Gly Ser Glu Lys Glu	Ser Lys Thr Ala Gln Glu Ser Asn Asp Thr Val		
	100	105	110
His Ser Ser Asn Ser	Ser Ser Ser Lys Arg Glu Val Ser Gly Gln Thr Ile		
	115	120	125
Gln Arg Glu Ser Gly	Thr Glu Thr Lys Lys Asp Ser Lys Val Ala Thr		
	130	135	140
Gly Thr Asp Asp Gly	Ile Arg Asn Gly Leu Ser Ile Gly Ile Pro Leu		
145	150	155	160
Leu Phe Ile Ile Ile	Ala Leu Ser Tyr Tyr Ala Lys Arg Gln Asn Thr		
	165	170	175
Ser Lys			

<210> 5622  
 <211> 275  
 <212> PRT  
 <213> B.fragilis

<400> 5622

Val Ile Leu His Lys	Ile Lys Gln Met Ile Lys Tyr Ile Ala Thr Leu
1	5
Leu Leu Thr Val Leu	Phe Val Ala Cys Asn Asn Gly Lys Gly Gln Gln
	20
Pro Ser Glu Glu Asn	Glu Asp Pro Lys Ala Lys Glu Ile Leu Gln Gly
	35
Ile Trp Leu Asp Asp	Glu Thr Glu Thr Pro Leu Met Arg Ile Ile Gly
	50
Asp Thr Ile Tyr Tyr	Ser Asp Ala Gln Ser Ala Pro Val Tyr Phe Lys
65	70
Ile Leu Lys Asp Thr	Leu Tyr Thr Tyr Gly Lys Asp Val Thr His Tyr
	85
Gln Ile Asp Lys Gln	Ser Glu Tyr Ser Phe Trp Phe His Ser Leu Ala
	100
Asp Asn Ile Ile Lys	Leu His Lys Ser Glu Asp Pro Asn Asp Thr Leu
	115
Ala Phe Ser Phe Lys	Ser Val Glu Ile Ile Pro Thr Tyr Thr Glu Val
	130
Thr Lys Lys Asp Ser	Val Val Met Phe Asp Gly Val Arg Tyr Arg Ala
145	150
Tyr Val Tyr Ile Asn	Pro Ser Gln Met Lys Val Val Lys Thr Thr Tyr
	165
Ser Glu Asp Gly Ile	Ser Met Asp Asn Ile Tyr Tyr Asp Asn Val Met
	180
His Ile Cys Val Tyr	Glu Gly Lys Ser Leu Tyr Ala Lys Asp Ile
	195
Thr Lys Gln Met Phe	Val Asp Val Ile Pro Thr Asp Phe Leu Gln Gln
	210
Ala Ile Leu Ser Asp	Met Asn Phe Thr Gly Ile Asp Arg Lys Gly Tyr
	215
	220

225                      230                      235                      240  
 His Tyr Gln Ala Leu Val Cys Ile Pro Glu Ser Pro Val Cys Asn Leu  
                                  245                      250                      255  
 Val Asn Leu Thr Ile Ser Phe Asp Gly Lys Leu Asn Ile Thr Ala Ala  
                                  260                      265                      270  
 Lys Tyr Lys  
                                  275

<210> 5623  
 <211> 126  
 <212> PRT  
 <213> B.fragilis

<400> 5623  
 Asn His Phe Asn Thr Leu Asn Tyr Leu Ile Met Gly Leu Asp Ile Ala  
 1                      5                      10                      15  
 Ile Ala Ser Ala Val Val Glu Ile Ile Thr Leu Ile Phe Phe Phe Val  
                                  20                      25                      30  
 Leu Cys Arg Asn Val Ser Lys Ile Lys Lys Glu Ile Val Ser Asn Asp  
                                  35                      40                      45  
 Asn Leu Pro Gly Met Phe Ala Met Tyr Ile Ser Leu Gly Glu Thr Asp  
                                  50                      55                      60  
 Lys Ala Lys Lys Ile Leu Tyr Lys Ala Ile Ser Lys Glu Pro Glu Phe  
 65                      70                      75                      80  
 Ile Ala Ala Phe Cys Tyr Asn Gly Asn Asn Ser Ala Gln Gln Ser Thr  
                                  85                      90                      95  
 Leu Lys Arg Lys Tyr Lys Pro Tyr Leu Glu Ile Leu Gly Leu Glu Leu  
                                  100                      105                      110  
 Asp Phe Glu Leu Val Asn Lys Phe Ile Gln Glu Arg Glu Lys  
                                  115                      120                      125

<210> 5624  
 <211> 470  
 <212> PRT  
 <213> B.fragilis

<400> 5624  
 Val Ile Ile Lys Asn Arg Ile Leu Ile Ile Pro Ala Phe Phe Leu Leu  
 1                      5                      10                      15  
 Pro Lys Arg Arg Arg Lys Gly Lys Ala Pro Lys Ile Leu Asn Lys Met  
                                  20                      25                      30  
 Ala Thr Lys Lys Glu Tyr Phe Pro Gly Ile Gly Lys Ile Lys Phe Glu Gly  
                                  35                      40                      45  
 Lys Asp Ser Lys Asn Pro Met Ala Phe Arg Tyr Tyr Asp Ala Glu Lys  
                                  50                      55                      60  
 Met Ile Asn Gly Arg Ser Met Lys Asp Trp Leu Lys Phe Ala Met Ala  
 65                      70                      75                      80  
 Trp Trp His Thr Leu Cys Ala Glu Gly Gly Asp Gln Phe Gly Gly Gly  
                                  85                      90                      95  
 Thr Lys Gln Phe Pro Trp Asn Gly Asp Pro Asp Pro Val Gln Ala Ala  
                                  100                      105                      110  
 Lys Asn Lys Met Asp Ala Gly Phe Glu Phe Met Gln Lys Met Gly Ile  
                                  115                      120                      125  
 Gly Tyr Tyr Cys Phe His Asp Val Asp Leu Val Thr Glu Ala Asp Ser  
                                  130                      135                      140  
 Ile Glu Ala Tyr Glu Ala Asn Leu Lys Glu Leu Val Ala Tyr Ala Lys  
 145                      150                      155                      160  
 Gln Lys Gln Ala Glu Thr Gly Ile Lys Leu Leu Trp Gly Thr Ala Asn  
                                  165                      170                      175

Val Phe Ser His Ala Arg Tyr Met Asn Gly Ala Ala Thr Asn Pro Asp  
 180 185 190  
 Phe Asp Val Val Ala Arg Ala Ala Val Gln Ile Lys Asn Ala Ile Asp  
 195 200 205  
 Ala Thr Ile Glu Leu Gly Gly Thr Asn Tyr Val Phe Trp Gly Gly Arg  
 210 215 220  
 Glu Gly Tyr Met Ser Leu Leu Asn Thr Asp Gln Lys Arg Glu Lys Glu  
 225 230 235 240  
 His Leu Ala Gln Met Leu Thr Ile Ala Arg Asp Tyr Gly Arg Ala Arg  
 245 250 255  
 Gly Phe Lys Gly Thr Phe Leu Ile Glu Pro Lys Pro Met Glu Pro Thr  
 260 265 270  
 Lys His Gln Tyr Asp Val Asp Thr Glu Thr Val Ile Gly Phe Leu Lys  
 275 280 285  
 Ala His Gly Leu Asp Gln Asp Phe Lys Val Asn Ile Glu Val Asn His  
 290 295 300  
 Ala Thr Leu Ala Gly His Thr Phe Glu His Glu Leu Ala Val Ala Val  
 305 310 315 320  
 Asp Asn Gly Met Leu Gly Ser Ile Asp Ala Asn Arg Gly Asp Tyr Gln  
 325 330 335  
 Asn Gly Trp Asp Thr Asp Gln Phe Pro Ile Asp Asn Phe Glu Leu Thr  
 340 345 350  
 Gln Ala Met Met Gln Ile Ile Arg Asn Asp Gly Leu Gly Asn Gly Gly  
 355 360 365  
 Thr Asn Phe Asp Ala Lys Thr Arg Arg Asn Ser Thr Asp Pro Glu Asp  
 370 375 380  
 Ile Phe Ile Ala His Ile Ala Gly Met Asp Ala Met Ala Arg Ala Leu  
 385 390 395 400  
 Glu Ser Ala Ala Asn Leu Leu Asn Glu Ser Pro Tyr Gln Lys Met Leu  
 405 410 415  
 Ser Asp Arg Tyr Ala Ser Phe Asp Ala Gly Lys Gly Lys Glu Phe Glu  
 420 425 430  
 Glu Gly Lys Leu Ser Leu Glu Glu Leu Val Ala Tyr Ala Lys Ala Asn  
 435 440 445  
 Gly Glu Pro Lys Gln Thr Ser Gly Gln Gln Glu Leu Tyr Glu Ala Leu  
 450 455 460  
 Val Asn Ile Tyr Ser Leu  
 465 470

&lt;210&gt; 5625

&lt;211&gt; 198

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5625

Met Ile Tyr Asn Ile Asn Val Ile Thr Asn Asn Lys Phe Ser Met Lys  
 1 5 10 15  
 Lys Asn Arg Leu Thr Leu Val Ala Ala Ile Phe Leu Ser Gly Thr Ile  
 20 25 30  
 Leu Phe Ser Ser Cys Val Gly Ser Phe Gly Leu Phe Asn Arg Ile Ser  
 35 40 45  
 Ser Trp Asn Gln Ser Ile Gly Thr Lys Phe Val Asn Glu Leu Val Phe  
 50 55 60  
 Leu Ala Leu Asn Ile Val Pro Val Tyr Gly Val Ala Tyr Leu Ala Asp  
 65 70 75 80  
 Ala Leu Val Ile Asn Ser Ile Glu Phe Trp Ser Gly Thr Asn Pro Met  
 85 90 95  
 Ala Asn Val Gly Asp Val Lys Lys Val Lys Gly Glu Asn Gly Asp Tyr  
 100 105 110

Leu Val Lys Thr Leu Glu Asn Gly Tyr Ser Ile Thr Lys Glu Gly Glu  
 115 120 125  
 Asp Ser Ala Met Glu Leu Ile Tyr Asn Lys Glu Ala Asn Thr Trp Asn  
 130 135 140  
 Val Val Ala Asp Gly Val Ser Thr Glu Leu Leu Lys Met Asn Asn Asp  
 145 150 155 160  
 Gly Thr Ala Glu Met Asn Leu Pro Asn Gly Asp Lys Met Asn Val Thr  
 165 170 175  
 Leu Asp Ala Gln Gly Met Met Ala Ala Arg Gln Ala Thr Met Gly Gly  
 180 185 190  
 Leu Leu Phe Ala Ala Arg  
 195

<210> 5626  
 <211> 510  
 <212> PRT  
 <213> B.fragilis

<400> 5626  
 Thr Thr Asn Lys Leu Ile Asn Ser Ile Met Phe Leu Leu Gly Tyr Asp  
 1 5 10 15  
 Ile Gly Ser Ser Ser Val Lys Ala Ser Leu Val Asp Ala Glu Thr Gly  
 20 25 30  
 Lys Cys Val Ala Ser Ala Phe Phe Pro Lys Thr Glu Ala Gly Ile Ile  
 35 40 45  
 Ala Ile Arg Pro Gly Trp Ala Glu Gln Glu Pro Glu Ser Trp Trp Glu  
 50 55 60  
 Ser Leu Lys Leu Ser Thr Arg Ser Ile Leu Ser Glu Ser Arg Val Asp  
 65 70 75 80  
 Ala Lys Asp Ile Lys Ala Ile Gly Ile Ser Tyr Gln Met His Gly Leu  
 85 90 95  
 Val Cys Val Asp Lys Arg Gln Arg Thr Leu Arg Pro Ala Ile Ile Trp  
 100 105 110  
 Cys Asp Ser Arg Ala Val Ser Tyr Gly Gln Arg Ala Phe Glu Ala Ile  
 115 120 125  
 Gly Glu Lys Phe Cys Leu Ala His Leu Leu Asn Ser Pro Gly Asn Phe  
 130 135 140  
 Thr Ala Ser Lys Leu Ala Trp Val Lys Glu Asn Glu Pro Asp Ile Tyr  
 145 150 155 160  
 Glu Gln Ile Asp Lys Ile Met Leu Pro Gly Asp Tyr Ile Ala Met Lys  
 165 170 175  
 Leu Ser Gly Glu Val Cys Thr Thr Ile Glu Gly Leu Ser Glu Gly Met  
 180 185 190  
 Phe Trp Asp Phe Arg Asn Asn Arg Pro Ala Asp Phe Leu Met Gln Tyr  
 195 200 205  
 Tyr Gly Ile Asp Pro Ser Leu Ile Ala Asp Ile Arg Pro Thr Phe Ala  
 210 215 220  
 Glu Gln Gly Arg Leu Thr Gly Thr Ala Ala Arg Glu Leu Gly Leu Gln  
 225 230 235 240  
 Glu Gly Thr Pro Ile Thr Tyr Arg Ala Gly Asp Gln Pro Asn Asn Ala  
 245 250 255  
 Leu Ser Leu Asn Val Phe Asn Pro Gly Glu Ile Ala Ser Thr Ala Gly  
 260 265 270  
 Thr Ser Gly Val Val Tyr Gly Val Asn Gly Glu Ile Asn Tyr Asp Pro  
 275 280 285  
 Gln Ser Arg Val Asn Thr Phe Ala His Val Asn His Thr Ala Ala Asp  
 290 295 300  
 Pro Arg Leu Gly Val Leu Cys Ile Asn Gly Thr Gly Ile Leu Asn  
 305 310 315 320

Ser Trp Ile Arg Arg Asn Val Ala Pro Glu Gly Ile Ser Tyr Ala Glu  
 325 330 335  
 Met Asn Arg Phe Ala Ser Ser Val Pro Ile Gly Ser Ala Gly Ile Ser  
 340 345 350  
 Ile Leu Pro Phe Gly Asn Gly Ala Glu Arg Met Leu Asp Asn Arg Ala  
 355 360 365  
 Thr Gly Cys Gly Ile His Gly Val Asp Phe Asn Arg His Asp Lys Ser  
 370 375 380  
 His Leu Ile Arg Ala Ala Gln Glu Gly Ile Val Phe Ser Phe Lys Tyr  
 385 390 395 400  
 Gly Ile Asp Ile Met Glu Glu Met Gly Ile Pro Val Lys Lys Ile His  
 405 410 415  
 Ala Gly His Ala Asn Met Phe Leu Ser Ser Val Phe Arg Glu Thr Leu  
 420 425 430  
 Ala Gly Thr Thr Gly Ala Thr Ile Glu Leu Tyr Asp Thr Asp Gly Ser  
 435 440 445  
 Val Gly Ala Ala Lys Gly Ala Gly Met Gly Ala Gly Ile Tyr Lys Asp  
 450 455 460  
 His Glu Glu Ala Phe Ala Thr Leu Asp Lys Leu Thr Val Val Glu Pro  
 465 470 475 480  
 Asp Ala Gly Lys Gln Gln Glu Tyr Thr Asp Ala Tyr Ala Arg Trp Lys  
 485 490 495  
 Gln Cys Leu Thr Gln Ser Met Gln Thr Glu Thr Glu Asn Lys  
 500 505 510

&lt;210&gt; 5627

&lt;211&gt; 84

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5627

Ala Met Asn Lys Gln Met Thr Ile Ala Lys Lys Arg Tyr Ser Phe Lys  
 1 5 10 15  
 Lys Ala Tyr Glu Arg Val Pro Leu Gly Gln Ile Glu Ser Leu Lys Lys  
 20 25 30  
 Glu Leu Tyr Ser Val Phe Ser Ile Asn Asn Arg Thr Ser Trp Tyr Asn  
 35 40 45  
 Lys Leu Lys Gly Ile Thr Ser Pro Ser Ile Glu Val Val Glu Ala Val  
 50 55 60  
 Glu Thr Val Phe Leu Lys Tyr Gly Ile Glu Asn Cys Trp Glu Ile Thr  
 65 70 75 80  
 Glu Ile Lys Leu

&lt;210&gt; 5628

&lt;211&gt; 78

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5628

Ser Glu Asp Asn Gln Ser His Ile Tyr Leu Leu Cys Phe Ser Arg Ser  
 1 5 10 15  
 Leu Thr Ala Gly Met His Ile Ile Lys Ile Glu Val Asn Thr Ile Ala  
 20 25 30  
 Ile Pro Gln Gln Ile Lys Ile Leu Ala Ile Pro Lys Leu Ser Ala Ile  
 35 40 45  
 Asn Pro Val Met Asn Asn Pro Met Ile Glu Gly Asn Lys Leu Thr Leu  
 50 55 60  
 Ser Lys Arg Glu Asn Thr Arg Pro Lys Tyr Ala Gly Leu Asn

65

70

75

<210> 5629  
 <211> 385  
 <212> PRT  
 <213> B.fragilis

<400> 5629

Phe Ile Arg Lys Glu Ser Gln Pro Gly Met Thr Phe Glu Leu Gln Tyr  
 1 5 10 15  
 Thr Asp Ala Lys Ser Asn Ala Arg Ala Gly Leu Ile Thr Thr Asp His  
 20 25 30  
 Gly Gln Ile Gln Thr Pro Ile Phe Met Pro Val Gly Thr Ile Gly Ser  
 35 40 45  
 Val Lys Gly Val His Gln Thr Glu Leu Lys Glu Asp Ile Gln Ala Gln  
 50 55 60  
 Ile Ile Leu Gly Asn Thr Tyr His Leu Tyr Leu Arg Pro Gly Leu Asp  
 65 70 75 80  
 Val Leu Glu Lys Ala Gly Gly Leu His Lys Phe Asn Gly Phe Asp Arg  
 85 90 95  
 Pro Met Leu Thr Asp Ser Gly Gly Phe Gln Val Phe Ser Leu Ser Gly  
 100 105 110  
 Ile Arg Lys Leu Arg Glu Glu Gly Ala Glu Phe Arg Ser His Ile Asp  
 115 120 125  
 Gly Ser Lys His Ile Phe Thr Pro Glu Lys Val Met Asp Ile Glu Arg  
 130 135 140  
 Ile Ile Gly Ala Asp Ile Met Met Ala Phe Asp Glu Cys Pro Pro Gly  
 145 150 155 160  
 Asp Ser Asp Tyr Ala Tyr Ala Lys Lys Ser Leu Gly Leu Thr His Arg  
 165 170 175  
 Trp Leu Asp Arg Cys Ile Gln Arg Phe Asn Glu Thr Glu Pro Lys Tyr  
 180 185 190  
 Gly Tyr Ser Gln Ser Leu Phe Pro Ile Val Gln Gly Cys Val Tyr Pro  
 195 200 205  
 Asp Leu Arg Lys Gln Ser Ala Glu Tyr Ile Ala Ser Lys Asp Ala Asp  
 210 215 220  
 Gly Asn Ala Ile Gly Gly Leu Ala Val Gly Glu Pro Val Asp Lys Met  
 225 230 235 240  
 Tyr Glu Met Ile Glu Leu Val Asn Glu Ile Leu Pro Lys Asp Lys Pro  
 245 250 255  
 Arg Tyr Leu Met Gly Val Gly Thr Pro Val Asn Ile Leu Glu Gly Ile  
 260 265 270  
 Glu Arg Gly Val Asp Met Phe Asp Cys Val Met Pro Thr Arg Asn Gly  
 275 280 285  
 Arg Asn Gly Met Leu Phe Thr Lys Asp Gly Ile Met Asn Met Arg Asn  
 290 295 300  
 Lys Lys Trp Glu Ala Asp Phe Ser Pro Ile Glu Ala Asp Gly Ala Ser  
 305 310 315 320  
 Tyr Val Asp Thr Leu Tyr Ser Lys Ala Tyr Leu Arg His Leu Phe His  
 325 330 335  
 Ala Gln Glu Leu Leu Ala Met Gln Ile Ala Ser Ile His Asn Leu Ala  
 340 345 350  
 Phe Tyr Leu Trp Leu Val Gly Glu Ala Arg Lys His Ile Ile Ala Gly  
 355 360 365  
 Asp Phe Ser Thr Trp Lys Pro Met Met Val Lys Arg Val Ser Thr Arg  
 370 375 380  
 Leu  
 385



<210> 5630  
 <211> 355  
 <212> PRT  
 <213> B.fragilis

<400> 5630

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Leu Lys Ser Lys Lys Gln Val Met Lys Lys Phe Phe Arg Phe Gln Leu
1      5      10      15
Cys Cys Ile Cys Leu Leu Val Leu Ile Val Ser Ala Cys Lys Val Lys
20      25      30
Arg Pro Asp Ser Val Ile Ser Glu Met Glu Asn Leu Leu Tyr
35      40      45
Asp Tyr His Ile Ala Lys Ala Met Gly Glu Asn Met Pro Gly Gly Glu
50      55      60
Asn Tyr Lys Lys Ala Leu Tyr Val Glu Ala Val Phe Lys Lys Tyr Gly
65      70      75      80
Thr Thr Glu Glu Val Phe Asp Ser Ser Met Val Trp Tyr Thr Arg Asn
85      90      95
Thr Lys Ile Leu Ser Glu Ile Tyr Glu Lys Val Asn Lys Arg Leu Lys
100     105     110
Ala Gln Gln Asn Ala Ile Asn His Leu Ile Ala Leu Arg Asp Asn Lys
115     120     125
Pro Lys Met Ser Ala Pro Gly Asp Ser Ile Asp Val Trp Ala Trp Gln
130     135     140
Arg Ile Ala Gln Leu Thr Glu Ala Pro Leu Asn Asn Lys Phe Thr Phe
145     150     155     160
Thr Leu Pro Ser Asp Thr Asn Phe Lys Lys Arg Asp Val Leu Leu Trp
165     170     175
Lys Met Gln Tyr Asn Phe Leu Ser Glu Ile Pro Asp Ser Thr Met Ala
180     185     190
Pro Ile Met Ala Met Gln Ile Val Tyr Glu Asn Asp Thr Val Thr His
195     200     205
Ser Cys Val Lys His Ile Phe Lys Ser Gly Ile Gln Asn Ile Arg Leu
210     215     220
Gln Ser Asp Thr Met Asn Ile Lys Glu Ile Lys Gly Phe Ile Phe Cys
225     230     235     240
Pro Leu Ser Glu Glu Ser Ile Thr Leu Leu Val Ser Asp Ile Ser Leu
245     250     255
Thr Arg Tyr His Ala Asn Asp Ser Ile Thr Gln Ile Gly Arg Asp Ser
260     265     270
Leu Lys Thr Asp Ser Ile Lys Glu Lys Ser Lys Asp Asp Ser Ile Gln
275     280     285
Lys Lys Thr Pro Lys Asp Thr Ile Gln Ala Ser Ser Pro His Gln Arg
290     295     300
Thr Asn Pro Asn Asp Leu Asn Arg Pro Asn Asn Asp Val Arg Pro Ile
305     310     315     320
Lys Pro Glu Gln Arg Glu Lys Glu Met Gln Ile Glu Lys Glu Lys Gln
325     330     335
Gln Leu Glu Arg Gln Gln Arg Thr Asn Pro Arg Arg Pro Leu Arg Arg
340     345     350
Gln Asn Asn
355

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<210> 5631  
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 <212> PRT  
 <213> B.fragilis

<400> 5631

Leu Leu Ile Asn Gly Ser Arg Val Arg Val Pro Glu Gly Val Gln Lys  
 1 5 10 15  
 Glu Ile Ile Asn Asn Leu Leu Phe Val Phe Gly Gly Ile Leu Lys Tyr  
 20 25 30  
 Cys Phe Ile Phe Ala Thr Ala Lys Ile Asn Leu Met Lys Thr Thr Tyr  
 35 40 45  
 Gln Phe Asn Ile Leu Val Asn His Leu Glu Leu Ala  
 50 55 60

<210> 5632

<211> 133

<212> PRT

<213> B.fragilis

<400> 5632

Tyr Ile Pro Asn Lys Gln Asp Ile Ser Leu Ile Ile Asn Ile Asn Phe  
 1 5 10 15  
 Ile Ile Met Asn Phe Asp Leu Lys Ala Phe Arg Lys Arg Phe Gly Leu  
 20 25 30  
 Lys Gln Val Glu Val Ala His Leu Phe Asn Cys Gly Gln Ser Asn Ile  
 35 40 45  
 Ser Asp Ile Glu Thr Gly Lys Arg Gly Leu Glu Glu Tyr Gln Thr Arg  
 50 55 60  
 Ile Leu Phe Asp Lys Tyr Gly Glu Glu Val Val Lys Glu Tyr Leu Ile  
 65 70 75 80  
 Pro Glu Ser Ala Ile His Gln Gly Asn Ile Asn Gly Asp Asn Ile Asn  
 85 90 95  
 Gly His Asn Val Thr Val Asn Lys Ala Asp Phe Asp Lys Leu Ile Ser  
 100 105 110  
 Leu Leu Asn Lys Arg Asp Glu Gln Ile Asp Arg Leu Leu Arg Ile Ile  
 115 120 125  
 Glu Asn Leu Asn Lys  
 130

<210> 5633

<211> 206

<212> PRT

<213> B.fragilis

<400> 5633

Glu Arg Asn Asn Ile Met Thr Leu Lys Gln Ala Gln Lys Leu Tyr Asp  
 1 5 10 15  
 Asp Ser Val Gln Ala Lys Met Thr His Ala Asp Tyr Cys Met Thr Gln  
 20 25 30  
 Ser Gln Leu Glu Tyr Ile Gly Arg Thr Met Trp Gly Phe Thr Pro Asp  
 35 40 45  
 Lys Gln Ala Lys Val Leu Phe Thr Lys Val Gly Lys Arg Val Ser Val  
 50 55 60  
 Val Ile Ala Ser Arg Glu Ala Phe Ile Lys Glu Ile Gly Lys Pro Val  
 65 70 75 80  
 Ile Cys Lys Cys Ser Val Cys Asp Met Tyr Tyr Leu Ala Tyr Arg Lys  
 85 90 95  
 Ser Val Asp Ala His Asp Glu Leu Asn Ala Gln Cys Pro Lys Cys Asp  
 100 105 110  
 Ser Leu Gly Cys Asp Ser Asp Ile Val His Phe Glu Thr Ser Arg Lys  
 115 120 125  
 Phe Trp Leu Asn Glu Lys Ile Val Lys Ile Leu Thr Pro Asn Lys Asp  
 130 135 140  
 Pro Glu Arg Val Glu Ala Met Tyr Asp Ser Ala Pro Glu Asp Phe Pro

145		150		155		160									
Ala	Gln	Tyr	Glu	Met	Leu	Leu	Pro	Asp	Gly	Lys	Arg	Cys	Thr	Asp	Cys
				165					170					175	
Val	Arg	Cys	Ala	Thr	Cys	Cys	Ser	Val	Phe	Gly	Gln	Lys	Glu	Ser	Ala
			180					185					190		
Thr	Ile	Cys	Gln	Trp	His	Pro	Ser	Arg	Tyr	Ser	Ala	Gly	Glu		
		195					200					205			

&lt;210&gt; 5634

&lt;211&gt; 229

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5634

His	Ser	Leu	Asn	Ser	Phe	Asn	His	Gln	Cys	Leu	Ile	Leu	Lys	Arg	Gln
1			5					10					15		
Asn	Met	Lys	Thr	Pro	Ser	Leu	Ile	Leu	Met	Thr	Ile	Ile	Leu	Cys	Asn
		20					25					30			
Leu	Ser	Ile	Pro	Ile	Asn	Ala	Gln	Ile	Leu	Thr	Ser	Arg	Gln	Gln	Lys
		35				40					45				
Glu	Asp	Phe	Asp	Thr	Leu	Tyr	Ser	Leu	Leu	His	Gln	Val	His	Pro	Asp
	50				55			60							
Leu	Phe	Val	Tyr	Gln	Thr	Gln	Lys	Glu	Phe	Glu	Lys	Lys	His	Asp	Ser
65				70				75					80		
Ile	Tyr	Ser	Ser	Leu	Asn	Lys	Glu	Arg	Asn	Leu	Ser	Asp	Phe	Tyr	Phe
			85				90					95			
Ile	Val	Ser	Pro	Phe	Val	Ala	Ser	Val	Lys	Asp	Gly	His	Thr	Asn	Phe
		100					105					110			
Thr	Ile	Pro	Ala	Thr	Gln	Asp	Arg	Ile	Thr	Tyr	Leu	Asn	Asn	Gly	Gly
		115				120						125			
Leu	Thr	Leu	Pro	Leu	Arg	Leu	Lys	Ile	Val	Glu	Asn	Lys	Ile	Leu	Val
	130					135					140				
Asp	Phe	Pro	Leu	Ile	Ser	Cys	Ser	Ile	Gln	Glu	Asn	Asp	Glu	Ile	Ile
145				150				155						160	
Cys	Met	Asn	Asn	Ile	Asn	Ser	Gln	Thr	Ile	Leu	Ser	Gln	Leu	Tyr	Leu
			165					170					175		
Leu	Leu	Gly	Ala	Glu	Lys	Gly	Asn	Ala	Ile	Lys	Glu	Asn	Gln	Leu	Thr
		180					185						190		
Ser	Tyr	Leu	Ser	Thr	Leu	Leu	Trp	Tyr	Lys	Tyr	Asn	Trp	Gly	Glu	Asn
		195				200						205			
Met	Ile	Leu	Gln	Leu	Lys	Glu	Lys	Arg	Tyr	Gly	Lys	Asn	His	Trp	
	210				215					220					
Met	Val	Ser	Ala	Lys											
225															

&lt;210&gt; 5635

&lt;211&gt; 158

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5635

His	Ile	Val	Asn	Gln	Gln	Asn	Met	Asn	Thr	Asn	Asn	Ile	Gly	Gly	Val
1			5					10					15		
Ile	Gln	Ala	Asp	Phe	Leu	Phe	Thr	Asp	Glu	Ile	Ser	Leu	Phe	Ser	Val
		20					25					30			
Ile	Asn	His	Ser	Ala	Val	Ile	Ser	Leu	His	Arg	Pro	Asn	Thr	Trp	Arg
		35				40						45			
Asn	Leu	Pro	Ile	Thr	Tyr	Met	Gly	Val	Ser	Pro	Asp	Val	Glu	Ala	Asp
	50					55						60			

Asp Thr Gln Ala Gly Thr Leu Tyr Lys Gln Thr Leu Thr Ile Arg Leu  
 65 70 75 80  
 Lys Arg Thr Gly Leu Thr Asp Ser Glu Leu His Ile Leu Arg Thr Ile  
 85 90 95  
 Asn Val Arg Gly Cys Val Val Arg Cys Lys Asp Ala Asn Gly Asn Ile  
 100 105 110  
 Arg Leu Tyr Gly Ser Lys Glu Tyr Pro Leu Leu Gly Thr Val Ile Glu  
 115 120 125  
 Lys Thr Gly Thr Lys Ala Ser Asp Leu Ser Gly Ile Glu Ala Thr Phe  
 130 135 140  
 Ser Gly Lys Gly Ala Tyr Pro Pro Leu Pro Val Thr Glu Leu  
 145 150 155

<210> 5636  
 <211> 80  
 <212> PRT  
 <213> B.fragilis

<400> 5636  
 Lys Gly Ser Lys Met Gly Thr Gly Phe Thr Glu Tyr Glu Glu Ser Leu  
 1 5 10 15  
 Ile Gln Ala Ile Cys Ser Leu Tyr Tyr Ile Gln Thr Arg Thr Tyr Lys  
 20 25 30  
 Gln Gly Val Phe Ile Gly Met Ile Pro Lys Asn Thr Arg Ile Thr Leu  
 35 40 45  
 Asn Gly Ile Tyr Met Met Lys Leu Leu Asn Thr Gly Asn Ala Val Tyr  
 50 55 60  
 Ile Glu Val Lys Gly Gly Ile Asn Val Leu Thr Ile Ile His Gln Gln  
 65 70 75 80

<210> 5637  
 <211> 202  
 <212> PRT  
 <213> B.fragilis

<400> 5637  
 Ile Met Pro Lys Lys Asp Thr Thr Tyr Asp Arg Ile Glu Arg Ser Leu  
 1 5 10 15  
 Phe Lys Asp Arg Gly Glu Ser Ala Leu Gln Leu Ser Pro Lys Glu Met  
 20 25 30  
 Glu Ile Lys Asn Arg Met Met Leu Cys Val Ser Lys Lys Met Glu Ser  
 35 40 45  
 Pro Leu Ile Glu Asp Gln Glu Leu Val Thr Phe Leu Met His Gly Cys  
 50 55 60  
 Gly Gly Gln Ala Glu Pro Val Ser Gln Ser Gln Ala Tyr Arg Asp Ile  
 65 70 75 80  
 Gly Met Ile Asn Arg Leu Val Gly Asn Ile Gln Leu Ala Ala Lys Ser  
 85 90 95  
 Trp Tyr Arg Tyr Met Ile Val Glu Gly Gly Lys Lys Ala Phe Gln Leu  
 100 105 110  
 Ala Ile Asp Asn Gly Asp Ala Lys Gly Ala Ala Ala Ala Leu Asp Lys  
 115 120 125  
 Ile Gly Lys Tyr Thr Arg Ser Asp Lys Asp Asp Ala Phe Asp Phe  
 130 135 140  
 Ser Gln Leu Ile Pro Pro Ser Phe Glu Pro Ser Asp Asp Val Thr Thr  
 145 150 155 160  
 Leu Glu Gly Ile Glu Val Ile Asp Asn Leu Glu Gln Arg Arg Gln Glu  
 165 170 175  
 Leu Arg Ser Leu Cys Lys Asp Met Leu Thr Lys Gln Ala Thr Asp Ile

180 185 190  
 Gln Thr Ile Glu Glu Glu Asp Ile Glu Glu  
 195 200

<210> 5638  
 <211> 120  
 <212> PRT  
 <213> B.fragilis

<400> 5638  
 Arg Thr Ala Lys Met Glu Asn Ile Phe Asp Ser Ala Lys Thr Ile Gln  
 1 5 10 15  
 Glu Lys Arg Thr Ile Leu Lys Gly Leu Ser Lys Pro Leu Gln Ile Leu  
 20 25 30  
 Val Lys Glu Ala Ala Ile Pro Thr Val Asn Asp Gly Leu Lys Ala Ile  
 35 40 45  
 Tyr Ala Gln Ser Gly His Thr Glu Leu Lys Thr Leu Lys Gln Trp Asn  
 50 55 60  
 Lys Glu Gly Arg Ser Ile Lys Lys Gly Ser His Ala Leu Cys Leu Trp  
 65 70 75 80  
 Gly Ala Pro Lys Lys Val Glu Thr Thr Gln Val Glu Glu Ala Gln Gly  
 85 90 95  
 Glu Asp Asn Asp Pro Met Asn Phe Tyr Pro Ile Cys Phe Val Phe Ser  
 100 105 110  
 Asn Leu Gln Val Tyr Glu Lys Gln  
 115 120

<210> 5639  
 <211> 64  
 <212> PRT  
 <213> B.fragilis

<400> 5639  
 Ile Ala Gln Asn Cys Ile Leu Tyr Ala Gln Cys Ile Asn Arg Thr Lys  
 1 5 10 15  
 Thr Tyr His Val Ser Tyr Gly Tyr Lys Pro Ile Ile Ile Asn Thr Leu  
 20 25 30  
 Cys Asp Lys Thr Ala Gln Phe Thr Gln Leu His Lys Lys Gly Val Pro  
 35 40 45  
 Phe Leu Gln Gly Gly Leu Val Cys Ser Gly Lys Ser Cys Leu Cys Pro  
 50 55 60

<210> 5640  
 <211> 252  
 <212> PRT  
 <213> B.fragilis

<400> 5640  
 Thr Ile Lys Asn Thr Ile Thr Met Lys Lys Ile Ile Leu Leu Leu Ala  
 1 5 10 15  
 Leu Cys Phe Thr Ala Asn Asn Phe Phe Ala Gln Thr Thr Asp Pro Asn  
 20 25 30  
 Gln Leu Lys Asn Glu Gly Asn Asp Ala Leu Asn Ala Lys Asn Tyr Ala  
 35 40 45  
 Val Ala Phe Glu Lys Tyr Ser Glu Tyr Leu Lys Leu Thr Asn Asn Gln  
 50 55 60  
 Asp Ser Val Thr Ala Tyr Asn Cys Gly Val Cys Ala Asp Asn Ile Lys  
 65 70 75 80  
 Lys Tyr Lys Glu Ala Ala Asp Tyr Phe Asp Ile Ala Ile Lys Lys Asn

[illegible]

<400> 5641

<210> 5642

<400> 5642

Thr	Ile	Arg	Lys	Glu	Gly	Cys	Leu	Met	Ala	Val	Tyr	Asn	Arg	Ile	Pro
1				5					10					15	
Asp	Arg	Phe	Thr	Asn	Leu	Asp	Ile	Arg	Asp	Thr	Leu	Asn	Ala	Tyr	Gly
			20					25					30		
Gly	Ser	Val	Gly	Asp	Asn	Ser	Leu	Asn	Tyr	Phe	Ser	Ala	Ala	Ala	His
			35				40					45			
Ile	Asn	Met	Trp	Ser	Lys	Arg	Lys	Pro	Val	Lys	Arg	Asn	Ile	Met	Phe
	50					55					60				

Asn	Thr	Glu	Asp	Pro	Asn	Trp	Phe	Arg	Ala	Asp	Ser	Gly	Asn	Tyr	Gly
65					70					75					80
Ile	Asn	Val	Pro	Arg	Ala	Ala	Asp	Ile	Ala	Leu	Leu	Thr	Gly	Thr	Tyr
				85					90					95	
Thr	Tyr	Asp	Ile	Pro	Val	Gln	Gly	Ser	Tyr	Asn	Leu	Arg	Val	Gly	Asp
			100					105					110		
Phe	Ala	Gly	Tyr	Asn	Pro	Glu	Ala	Thr	Val	Pro	Phe	Thr	Thr	Met	Leu
		115					120					125			
Pro	Ser	Gly	Leu	Ile	Leu	Ala	Ser	Gly	Ser	Ala	Thr	Val	Val	Lys	Leu
		130				135					140				
Met	Leu	Lys	Ser	Leu	Asp	Ser	Thr	Tyr	Asn	Val	Val	Pro	Ala	Asp	Ile
145					150					155					160
Phe	Pro	Ser	Asn	Ser	Tyr	Leu	Gly	Cys	Ala	Val	Thr	Tyr	Gly	Asn	Arg
			165						170					175	
Thr	Leu	Ile	Lys	Thr	Leu	Ser	Val	Thr	Ile	Phe	Asn	Gly	Gly	Val	Thr
			180					185					190		
Leu	Asn	Ile	Ser	Asp	Cys	Glu	Leu	Leu	Lys	Ser	Asp	Lys	Thr	Gly	Val
			195				200					205			
Arg	Ile	Lys	Val	Phe	Ile	Cys	Thr	Ser	Gln	Val	Pro	Ser	Trp	Gln	Gly
	210					215					220				
Glu	Thr	Thr	Gln	Ser	Tyr	Tyr	Ser	Leu	Asn	Ala	Glu	Asp	Gly	Phe	Asp
225					230					235					240
Glu	Ser	Thr	Val	Asp	Ile	Val	Thr	Pro	His	Ala	Asp	Val	Tyr	Ser	Phe
				245					250		.			255	
Gly	Ile	Leu	Gly	Leu	Ser	Ile	Ile	Glu	Ala	Arg	Lys	Ile	Ser	Leu	Ile
			260					265					270		
Gly	Thr	Ala	Ile	Ile	Asn	Ser	Gly	Ser	Leu	Phe	Gln	Glu	Gly	Arg	Leu
		275					280						285		
Ile	Ser	Arg	Leu	Asp	Asn	Asn	Tyr	Tyr	Leu	Lys	Ser	Val	Lys	Val	Val
	290					295					300				
Ala	Thr	Arg	Ala	Ser	Asp	Gly	Val	Thr	Val	Ala	Glu	Lys	Ala	Gln	Ser
305					310					315					320
Ile	Thr	Ser	Ser	Thr	Thr	Pro	Thr	Arg	Leu	Gly	Asn	Asp	Trp	Met	Ala
				325				330						335	
Gly	Glu	Ser	Val	Asn	Phe	Arg	Thr	Pro	Val	Ser	Arg	Ser	Ser	Pro	Gly
			340					345					350		
Ala	Gly	Gly	Glu	His	Val	Val									
			355												

&lt;210&gt; 5643

&lt;211&gt; 83

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5643

Thr	Leu	Gly	Asn	Thr	Gly	Phe	Thr	Glu	Arg	Gln	Phe	Leu	Asn	Asn	Ser
1				5				10						15	
Phe	Phe	Asn	Leu	Ser	Asn	Tyr	Lys	Leu	Lys	Val	Met	Ser	Arg	Arg	Arg
			20					25					30		
Gln	Leu	Glu	His	Glu	Val	Ser	Leu	Ala	Gln	Glu	Arg	Ile	Lys	Lys	Ala
		35					40					45			
Pro	Lys	Asp	Thr	Pro	Lys	Glu	Ile	Leu	Lys	Thr	Trp	Glu	Gln	Glu	Leu
	50					55					60				
Val	Asp	Leu	Glu	Leu	Glu	Leu	Asn	Asn	Leu	Val	Asp	Asp	Glu	Glu	Asp
65					70					75					80
Asn	Asn	Glu													

&lt;210&gt; 5644

<211> 331  
 <212> PRT  
 <213> B.fragilis

<400> 5644

Asn Arg Leu Lys Asn Ile Leu Ser Ile Ala Gln Phe His Gln Ile Cys  
 1 5 10 15  
 Ala Met Ile Leu Gln Lys Tyr Ile Thr Leu His Pro Gln Ile Lys Leu  
 20 25 30  
 Lys Asn Lys Asn Met Lys Ala Phe Val Phe Pro Gly Gln Gly Ala Gln  
 35 40 45  
 Phe Val Gly Met Gly Lys Asp Leu Tyr Glu Thr Ser Ala Leu Ala Lys  
 50 55 60  
 Glu Leu Phe Glu Lys Ala Asn Asp Ile Leu Gly Tyr Arg Ile Thr Asp  
 65 70 75 80  
 Ile Met Phe Asn Gly Thr Asp Glu Asp Leu Arg Gln Thr Lys Val Thr  
 85 90 95  
 Gln Pro Ala Val Phe Leu His Ser Val Ile Ser Ala Leu Cys Met Gly  
 100 105 110  
 Asp Asp Phe Lys Pro Glu Met Thr Ala Gly His Ser Leu Gly Glu Phe  
 115 120 125  
 Ser Ala Leu Val Ala Ala Gly Ala Leu Ser Phe Glu Asp Gly Leu Lys  
 130 135 140  
 Leu Val Tyr Ala Arg Ala Met Ala Met Gln Lys Ala Cys Glu Ala Thr  
 145 150 155 160  
 Pro Ser Thr Met Ala Ala Ile Ile Ala Leu Pro Asp Glu Lys Val Glu  
 165 170 175  
 Glu Ile Cys Ala Ser Val Thr Ala Glu Gly Glu Val Cys Val Pro Ala  
 180 185 190  
 Asn Tyr Asn Cys Pro Gly Gln Ile Val Ile Ser Gly Ser Val Pro Gly  
 195 200 205  
 Ile Glu Lys Ala Cys Glu Leu Met Lys Ala Ala Gly Ala Lys Arg Ala  
 210 215 220  
 Leu Pro Leu Lys Val Gly Gly Ala Phe His Ser Pro Leu Met Asp Pro  
 225 230 235 240  
 Ala Lys Val Glu Leu Glu Ala Ala Ile Asn Ala Thr Glu Phe His Thr  
 245 250 255  
 Pro Lys Cys Pro Val Tyr Gln Asn Val Asp Ala Leu Pro His Thr Asp  
 260 265 270  
 Pro Gln Glu Ile Lys Lys Asn Leu Val Ala Gln Leu Thr Ala Ser Val  
 275 280 285  
 Arg Trp Thr Gln Thr Val Lys Asn Met Val Ala Asp Gly Ala Thr Asp  
 290 295 300  
 Phe Thr Glu Cys Gly Pro Gly Ala Val Leu Gln Gly Leu Ile Lys Lys  
 305 310 315 320  
 Ile Asp Ser Thr Val Ser Ala His Gly Ile Ala  
 325 330

<210> 5645  
 <211> 157  
 <212> PRT  
 <213> B.fragilis

<400> 5645

Cys Ile Met Lys Asn Leu Glu Ile Leu Pro Leu Ser Ala Glu Ser Lys  
 1 5 10 15  
 Lys Arg Ile Glu Glu Phe Ala Arg Gln Tyr Gln Arg Tyr Ala His Ile  
 20 25 30  
 Ala Ile Glu Ile Val Ser Tyr Ser Glu Gly Arg Leu Ile Val Arg Ala

CCDC 1133



1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387</
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<400> 5646

<210> 5647

<211> 439

<212> PRT

<213> B.fragilis

<400> 5647

Lys	Asn	Met	Lys	Ile	Ala	Ile	Val	Gly	Thr	Gly	Tyr	Val	Gly	Leu	Val
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Thr	Gly	Thr	Cys	Phe	Ala	Glu	Ile	Gly	Val	Asp	Val	Thr	Cys	Val	Asp
			20					25					30		
Thr	Asn	Ser	Glu	Lys	Ile	Glu	Ala	Leu	Lys	Lys	Gly	Ile	Ile	Pro	Ile
		35					40					45			
Tyr	Glu	Asn	Gly	Leu	Glu	Glu	Met	Val	Ile	Arg	Asn	Thr	Lys	Ala	Gly
	50					55					60				
Arg	Leu	Lys	Phe	Thr	Thr	Ser	Leu	Glu	Ser	Cys	Leu	Asp	Asp	Val	Glu
65					70					75					80
Val	Val	Phe	Ser	Ala	Val	Gly	Thr	Pro	Pro	Asp	Glu	Asp	Gly	Ser	Ala
				85					90					95	
Asp	Leu	Ser	Tyr	Val	Leu	Ala	Val	Ala	Arg	Thr	Ile	Gly	Gln	Asn	Met
			100					105					110		
Lys	Lys	Tyr	Lys	Leu	Val	Val	Thr	Lys	Ser	Thr	Val	Pro	Val	Gly	Thr
		115					120					125			

Ala Cys Lys Val Arg Asn Ala Ile Gln Glu Glu Leu Asp Lys Arg Gly  
 130 135 140  
 Ala Lys Ile Glu Phe Asp Val Ala Ser Asn Pro Glu Phe Leu Lys Glu  
 145 150 155 160  
 Gly Asn Ala Val Asn Asp Phe Met Ser Pro Asp Arg Val Val Ile Gly  
 165 170 175  
 Val Glu Ser Glu Arg Ala Glu Lys Leu Met Thr Lys Leu Tyr Lys Pro  
 180 185 190  
 Phe Met Leu Asn Asn Phe Arg Val Ile Phe Met Asp Ile Pro Ser Ala  
 195 200 205  
 Glu Met Thr Lys Tyr Ala Ala Asn Ser Met Leu Ala Thr Arg Ile Ser  
 210 215 220  
 Phe Met Asn Asp Ile Ala Asn Leu Cys Glu Leu Val Gly Ala Asp Val  
 225 230 235 240  
 Asn Met Val Arg Ser Gly Ile Gly Ser Asp Thr Arg Ile Gly Arg Lys  
 245 250 255  
 Phe Leu Tyr Pro Gly Ile Gly Tyr Gly Gly Ser Cys Phe Pro Lys Asp  
 260 265 270  
 Val Lys Ala Leu Ile Lys Thr Ala Glu Gln Asn Gly Tyr Gln Met Arg  
 275 280 285  
 Val Leu Gln Ala Val Glu Glu Val Asn Glu Asn Gln Lys Ser Leu Leu  
 290 295 300  
 Phe Asp Lys Leu Val Lys Gln Tyr Asn Gly Asn Leu Glu Gly Lys Thr  
 305 310 315 320  
 Val Ala Leu Trp Gly Leu Ala Phe Lys Pro Glu Thr Asp Asp Met Arg  
 325 330 335  
 Glu Ala Pro Ala Leu Val Leu Ile Asp Lys Leu Leu Lys Ala Gly Cys  
 340 345 350  
 Lys Val Arg Ala Tyr Asp Pro Ala Ala Ala Asn Glu Cys Lys Arg Arg  
 355 360 365  
 Ile Gly Glu Thr Ile Tyr Tyr Ala Arg Asp Met Tyr Asp Ala Val Leu  
 370 375 380  
 Asp Ala Asp Ala Leu Met Leu Val Thr Glu Trp Lys Glu Phe Arg Leu  
 385 390 395 400  
 Pro Ser Trp Ala Val Val Lys Lys Thr Met Ser Gln Gln Val Val Met  
 405 410 415  
 Asp Gly Arg Asn Ile Tyr Asp Lys Lys Glu Met Glu Glu Gln Gly Phe  
 420 425 430  
 Ile Tyr His Cys Ile Gly Lys  
 435

&lt;210&gt; 5648

&lt;211&gt; 166

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5648

Asn Lys Met Lys Asn Val Ser Ser Ala Lys Ser Ala Glu Ala Lys Ala  
 1 5 10 15  
 Val Val Leu Ser Asn Val Ala Asn Lys Lys Asn Glu Thr Ala Pro Leu  
 20 25 30  
 Ile Val Leu Pro Ser Leu Pro Thr Glu Lys Glu Glu Thr Lys Glu Gln  
 35 40 45  
 Val Ser Ala Lys Val Glu Thr Pro Val Gln Thr Ser Lys Lys Glu Ser  
 50 55 60  
 Ser Ser Val Val Ala Ala Pro Asn Lys Arg Leu Ser Ile Asp Glu Leu  
 65 70 75 80  
 Thr Asp Lys Ala Glu Arg Val Tyr Leu Leu Arg Gln Lys Tyr Gln Glu  
 85 90 95

Val Arg Glu Lys Arg Lys Gln Leu Glu Ser Phe Thr Ile Ser His Asp  
 100 105 110  
 Lys Asn Asn Ala Gln Leu Thr Leu Val Asp Ala Lys Gly Leu Ser Ile  
 115 120 125  
 Ser Thr Ser Asn Pro Val Ala Ile Gly Lys Leu Leu Ser Asp Trp Met  
 130 135 140  
 Leu Asp Leu Asn Asn His Leu Ala Lys Thr Glu Glu Glu Ile Arg Ser  
 145 150 155 160  
 Glu Leu Glu Arg Leu Asn  
 165

&lt;210&gt; 5649

&lt;211&gt; 82

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5649

Lys Glu Met Asn Ser Asp Gly Asn Lys Ile Leu Asp Ala Ile Lys Arg  
 1 5 10 15  
 Met Ala Ala Asp Asp Asn Lys Gly Leu Arg Met Thr Thr Thr Ile Val  
 20 25 30  
 Asp Val Lys Asp Asp Pro Leu Gly Ser Ile Val Gly Phe Gly Thr Glu  
 35 40 45  
 Lys Val Cys Gly Asp Asp Ala Phe Ala Gln Thr Met Gly Leu Pro Gly  
 50 55 60  
 Lys Tyr Met Ala Cys Ala Phe Phe Ile Asp Arg Glu Glu Leu Lys Lys  
 65 70 75 80  
 Tyr Leu

&lt;210&gt; 5650

&lt;211&gt; 174

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5650

Leu Lys Pro Asn Tyr Met Arg His Val Lys Trp Ile Phe Val Val Leu  
 1 5 10 15  
 Leu Ile Ser Ser Leu Thr Ser Phe Val Glu Lys Asp Lys Pro Thr Gly  
 20 25 30  
 Gly Leu Asn Val Gly Asp Val Ala Pro Asp Phe Thr Ile Glu Ser Thr  
 35 40 45  
 Ser Asp Ala Gln Tyr Asn Phe Asp Leu Thr Asp Leu Lys Gly Lys Tyr  
 50 55 60  
 Val Leu Leu Ser Phe Trp Ala Ser Tyr Asp Ala Gln Ser Arg Met Gln  
 65 70 75 80  
 Asn Ala Ser Leu Ser Asn Ala Leu Arg Ser Thr Ser Gln Asp Val Glu  
 85 90 95  
 Met Val Ser Val Ser Phe Asp Glu Tyr Gln Ser Val Phe Gln Glu Thr  
 100 105 110  
 Ile Arg Lys Asp Gln Ile Val Thr Pro Thr Cys Phe Ala Glu Thr Lys  
 115 120 125  
 Gly Glu Ser Ser Gly Leu Phe Lys Lys Tyr Arg Leu Asn Arg Gly Phe  
 130 135 140  
 Thr Asn Tyr Leu Leu Asp Gly Asn Gly Val Ile Ala Lys Asn Ile  
 145 150 155 160  
 Ser Ala Ala Glu Leu Ser Ala Tyr Ala Asn Lys Ile Lys Gly  
 165 170

<210> 5651  
 <211> 187  
 <212> PRT  
 <213> B.fragilis

<400> 5651  
 Tyr His Gln Lys Arg Met Asn Tyr Ile Gln Thr Glu Ile Asp Gly Val  
 1 5 10 15  
 Trp Ile Ile Glu Pro Lys Ile Phe Phe Asp Pro Arg Gly Tyr Phe Met  
 20 25 30  
 Glu Ala Phe Lys Gln Gln Glu Phe Asp Ala Thr Ile Gly Gln Ile Asn  
 35 40 45  
 Phe Ile Gln Asp Asn Glu Ser Gln Ser Ser Phe Gly Thr Leu Arg Gly  
 50 55 60  
 Leu His Tyr Gln Lys Gly Ala Tyr Ser Gln Ala Lys Leu Val Arg Val  
 65 70 75 80  
 Ile Lys Gly Glu Val Leu Asp Val Ala Val Asp Leu Arg Lys Ser Ser  
 85 90 95  
 Pro Thr Phe Gly Lys His Ile Ser Val Leu Leu Ser Asp Glu Asn Lys  
 100 105 110  
 Arg Gln Leu Phe Ile Pro Arg Gly Phe Ala His Gly Phe Leu Val Lys  
 115 120 125  
 Ser Glu Ile Ala Ile Phe Thr Tyr Lys Val Asp Asn Ile Tyr Ala Pro  
 130 135 140  
 Gln Ser Glu Ala Ser Ile Leu Tyr Asn Asp Pro Ala Leu Ala Ile Asp  
 145 150 155 160  
 Trp Pro Ile Ala Asp Ser Gln Leu Val Met Ser Glu Lys Asp Lys Gln  
 165 170 175  
 Ala Gly Ala Phe Arg Glu Ala Glu Tyr Phe Glu  
 180 185

<210> 5652  
 <211> 206  
 <212> PRT  
 <213> B.fragilis

<400> 5652  
 Gly Asp Lys Asn Met Glu Ser Lys Phe His Glu Leu Lys Asn Arg Leu  
 1 5 10 15  
 Leu Lys Asn Ile Asp Gln Thr Ser Glu Ser Arg Leu Tyr Met Asp Ile  
 20 25 30  
 Gln Leu Ala Gln Asn Cys Glu Thr Leu Met Ser Ile Ile Lys Lys Asp  
 35 40 45  
 Ile Gly Tyr Leu Ala Lys Glu Gly Ile Leu Ser Pro Gly Ile Ala Glu  
 50 55 60  
 Asp Phe Lys Asp Val Phe Leu Ser Ala Gly Ile Lys Cys Asn Ser Gly  
 65 70 75 80  
 Gly Ser Ser Gly Tyr Met Leu Ile Trp Asp Gly Thr Ala Val Asp Ile  
 85 90 95  
 Ser Gly Thr Ala Thr Ala Val Ile Trp Lys Ser Glu Arg Ala Phe Ile  
 100 105 110  
 Lys Gly Arg Ala Cys Ala Phe Leu Leu Gly Glu Val Ser Ala Ile Thr  
 115 120 125  
 Cys Glu Arg Ser Met Val Ile Ala Ala Gly Ser Ser Thr Ile Leu Ala  
 130 135 140  
 Glu Gly Asp Ser Val Val Gly Val Ser Gly Tyr His Ala Ser Val Lys  
 145 150 155 160  
 Ala Ser Asp Tyr Ala Thr Val Val Asn Met Asn Cys Pro Asn Ile Asp  
 165 170 175

Leu Arg Asp Asn Thr Arg Leu Trp Leu Pro Ala Arg Gly Ser Phe Ala  
                   180                  185                  190  
 Ala Arg Lys Asn Cys Asp Ile Ile Ile Lys Asn Lys Glu Glu  
                   195                  200                  205

<210> 5653  
 <211> 74  
 <212> PRT  
 <213> B.fragilis

<400> 5653  
 Pro Lys Lys Lys Glu Gly Lys Pro Met Phe Lys Asp Ile Ile Glu Leu  
 1                  5                  10                  15  
 Asp Lys Gln Val Val Asp Arg Ile Val Asp Lys Val His Glu Asn Asn  
                   20                  25                  30  
 Leu Glu Ile Glu Met Glu Met Gly Val Val Lys Asp Gly Met Val Lys  
                   35                  40                  45  
 Val Leu Phe Leu Tyr Lys Asp Pro Glu Leu Leu Gln Ser Val Ile Asn  
                   50                  55                  60  
 Glu Ser Val Thr Glu Glu Tyr Asp Leu Pro  
 65                  70

<210> 5654  
 <211> 228  
 <212> PRT  
 <213> B.fragilis

<400> 5654  
 Thr Glu Lys Asn Asp Thr Met Ser Asn Ile Pro Val Ile Phe Arg Phe  
 1                  5                  10                  15  
 Leu Lys Asp Leu Thr Ala Asn Asn Asn Arg Glu Trp Phe Asn Glu His  
                   20                  25                  30  
 Arg Glu Glu Tyr Glu Ile Ala Arg Leu Glu Phe Glu Asn Phe Leu Ser  
                   35                  40                  45  
 Thr Val Ile Ala Arg Ile Ser Leu Phe Asp Glu Ser Ile Arg Gly Ile  
                   50                  55                  60  
 Gln Pro Lys Glu Cys Thr Tyr Arg Ile Tyr Arg Asp Thr Arg Phe Ser  
 65                  70                  75                  80  
 Ser Asp Lys Thr Pro Tyr Lys Asn His Phe Gly Gly Tyr Ile Asn Ala  
                   85                  90                  95  
 Lys Gly Lys Lys Ser Tyr His Ser Gly Tyr Tyr Ile His Ile Gln Pro  
                   100                  105                  110  
 Glu Gly Cys Met Leu Ala Gly Gly Ser Leu Cys Leu Pro Ser Asn Ile  
                   115                  120                  125  
 Leu Lys Ala Leu Arg Gln Ser Ile Tyr Asp Asn Ile Asp Glu Tyr Arg  
                   130                  135                  140  
 Ser Ile Val Glu Asp Pro Glu Phe Gln Gln Phe Phe Pro Ile Val Gly  
 145                  150                  155                  160  
 Glu Asp Phe Leu Lys Thr Ala Pro Lys Gly Phe Pro Lys Asp Phe Lys  
                   165                  170                  175  
 Tyr Ile Asp Tyr Leu Lys Pro Lys Glu Phe Thr Cys Ala Tyr Ser Val  
                   180                  185                  190  
 Pro Asp Ser Phe Phe Leu Thr Pro Asp Ile Leu Asp Lys Ile Glu Glu  
                   195                  200                  205  
 Val Phe Arg Gln Phe Lys Arg Phe Ala Asp Phe Thr Asn Phe Thr Ile  
                   210                  215                  220  
 Asp Asp Phe Glu  
 225

<210> 5655  
 <211> 113  
 <212> PRT  
 <213> B.fragilis

<400> 5655

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Leu Arg Glu Asn Met Lys Arg Phe Ala Ala His Tyr Leu Phe Val Pro
1      5      10      15
Gly Ser Gly Phe Leu Lys Gln Tyr Ala Ile Glu Ile Glu Gly Gly Tyr
      20      25      30
Ile Cys His Ile Phe Pro Phe Ser Glu Glu Ile Glu Ser Val Glu Trp
      35      40      45
Phe Pro Gly Val Ile Leu Leu Thr Pro Gln Glu Glu Ser Asp Ile Asn
      50      55      60
Thr Leu Phe Asn Phe Thr Asn Ile Glu Lys Gln Ser Ile Tyr Ile Pro
65      70      75      80
Lys Val Thr Ile Asp Met Lys Trp Arg Ala Tyr Leu Leu Tyr Pro Phe
      85      90      95
Asn Phe Val Thr Met Gln Pro Val Ala Glu Thr Leu His Arg Gln Leu
      100      105      110
Gln

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<210> 5656  
 <211> 357  
 <212> PRT  
 <213> B.fragilis

<400> 5656

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Arg Glu Arg Lys Asp Met Glu Ile Ile Lys Thr Gly Leu Ala Ala Phe
1      5      10      15
Gly Met Ser Gly Gln Val Phe His Ala Pro Phe Ile Ser Thr Asn Pro
      20      25      30
His Phe Glu Leu Tyr Lys Ile Val Glu Arg Ser Lys Glu Leu Ser Lys
      35      40      45
Glu Arg Tyr Pro Gln Ala Ser Ile Val Arg Ser Phe Lys Glu Leu Thr
      50      55      60
Glu Asp Pro Glu Ile Asp Leu Ile Val Val Asn Thr Pro Asp Asn Thr
65      70      75      80
His Tyr Glu Tyr Ala Gly Met Ala Leu Glu Ala Gly Lys Asn Val Val
      85      90      95
Val Glu Lys Pro Phe Thr Ser Thr Thr Lys Gln Gly Glu Glu Leu Ile
      100      105      110
Ala Leu Ala Lys Lys Lys Gly Leu Met Leu Ser Val Tyr Gln Asn Arg
      115      120      125
Arg Trp Asp Ala Asp Phe Leu Thr Val Arg Asp Ile Leu Ala Lys Ser
      130      135      140
Leu Leu Gly Arg Leu Val Glu Tyr Glu Ser Thr Phe Ala Arg Tyr Arg
145      150      155      160
Asn Phe Ile Lys Pro Asn Thr Trp Lys Glu Thr Gly Glu Ser Gly Gly
      165      170      175
Gly Leu Thr Tyr Asn Leu Gly Ser His Leu Ile Asp Gln Ala Ile Gln
      180      185      190
Leu Phe Gly Met Pro Glu Ala Val Phe Ala Asp Leu Gly Ile Leu Arg
      195      200      205
Glu Gly Gly Lys Val Asp Asp Tyr Phe Ile Ile His Leu Leu His Pro
210      215      220
Ser Leu Ala Pro Asn Val Lys Ile Thr Leu Lys Ala Ser Tyr Leu Met
225      230      235      240

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[illegible]

<400> 5657

<400> 5658

Lys	Leu	Ile	Glu	Met	Leu	Asn	Glu	Lys	Arg	Thr	Gln	Arg	Ile	Met	Lys
1				5					10					15	
Ser	Lys	Phe	Leu	Ile	Phe	Leu	Ser	Ala	Val	Ala	Met	Leu	Leu	Leu	Phe
			20					25					30		
Ser	Asn	Cys	Gly	Ser	Lys	Thr	Thr	Ser	Asn	Asp	Gln	Ala	Thr	Thr	Glu

35	40	45
Val Lys Asp Thr	Val Thr Ser Lys Glu Glu Ala Val	Pro Asp Ser Val
50	55	60
Ser Ile Leu Gly Asp	Gln Val Tyr Asp Ile Val Asn Thr Ala Pro Glu	
65	70	75
Phe Pro Gly Gly Met	Lys Ala Cys Leu Glu Phe Leu Tyr Lys Asn Ile	
85	90	95
Thr Tyr Pro Ala Gln	Ala Ile Glu Ser Lys Gln Glu Gly Gln Val Val	
100	105	110
Ile Gln Phe Val Val	Thr Lys Asn Gly Lys Ile Ile Asp Pro Lys Val	
115	120	125
Val Lys Ser Val Ser	Pro Ser Leu Asp Ala Glu Ala Ile Arg Ile Ile	
130	135	140
Asn Leu Met Pro Asp	Trp Thr Pro Gly Lys Gln Lys Asn Gly Gln Glu	
145	150	155
Val Asn Ser Arg Phe	Thr Leu Pro Val Arg Phe Thr Leu Lys	
165	170	

<210> 5659  
 <211> 145  
 <212> PRT  
 <213> B.fragilis

<400> 5659

Thr Met Tyr Asp	Ile Val Ala Gln Arg Leu Arg Leu Phe Leu Ala Lys
1	5 10 15
Lys Asp Ile Thr	Cys Lys Lys Leu Ser Ala Met Ile Phe Met Ser Glu
20	25 30
Ala Thr Leu Lys	Gly Lys Leu Asn Gly Thr Arg Thr Leu Asp Leu Asn
35	40 45
Thr Ile Ile Ser	Ile Ala Ile Arg Leu Glu Asp Leu Ser Val Glu Trp
50	55 60
Leu Leu Arg Gly	Glu Gly Asp Met Phe Lys Ser Ser Ser Gly Val Ser
65	70 75 80
Ile Leu Ser Ser	Ser Val Pro Ile Phe Thr Gly Glu Thr Ser Phe Ile
85	90 95
Tyr Ser Met Tyr	Lys Glu Glu Arg Glu Glu Val Lys Thr Leu Leu Lys
100	105 110
Gln Asn Gly Ile	Leu Glu Glu Arg Ile Arg Gln Leu Glu Asp Asp Asn
115	120 125
Arg Leu Leu Arg	Asp Gln Val Thr Glu Leu Asn Leu Asn Thr Lys
130	135 140
Leu	
145	

<210> 5660  
 <211> 122  
 <212> PRT  
 <213> B.fragilis

<400> 5660

Lys Met His Asp	Ile Val Thr Gln Arg Leu Asn Gln Phe Leu Val Glu
1	5 10 15
Lys Asn Ile Thr	Tyr Lys Glu Leu Ser Gly Met Ile Leu Met Ser Glu
20	25 30
Thr Ser Leu Cys	Arg Lys Leu Thr Gly Ser Arg Ser Leu Asp Leu His
35	40 45
Thr Leu Ile Ser	Ile Val Ala Cys Leu Pro Asp Val Ser Ser Glu Trp
50	55 60



Leu Leu Arg Gly Lys Gly Arg Val Cys Asn Ser Ser Ser Ser Ile Ser  
 65 70 75 80  
 Ser Asp Val Leu Val Glu Glu Leu Lys Met Glu Asn Asn Leu Leu Lys  
 85 90 95  
 Arg Lys Ile Gln Val Leu Gln Glu Leu Leu Glu Phe Lys Met Glu Lys  
 100 105 110  
 Ile Arg Ala Glu Asn Gly Asn Ile Lys Lys  
 115 120

<210> 5661  
 <211> 303  
 <212> PRT  
 <213> B.fragilis

<400> 5661  
 Gln Lys Ser Asp His Tyr Val Ser Ser Leu Leu Tyr Ser Val Phe Ile  
 1 5 10 15  
 Tyr His Met Val Arg Lys Ser Ser Ile Asn Lys Tyr Glu Leu Asp Val  
 20 25 30  
 Arg Lys Gly Leu Gln Glu Leu Phe Asp Lys Cys Arg His Asn Met Lys  
 35 40 45  
 His Ser Gly Asp Leu Leu Leu Cys Gln Gln Asn Gly Phe Ile Asp Tyr  
 50 55 60  
 Lys Gly Arg Pro Cys Val Gly Leu Gly Asp Glu Gly Leu Asn Cys Met  
 65 70 75 80  
 Gln Gln Val Asn Phe Ile Ser Phe Asn Gly Ile Gly Asn Ile Thr Asp  
 85 90 95  
 Asp Asn Asp Tyr Tyr Lys Lys Glu Gly Asn Asn Phe Phe Tyr Gly Asn  
 100 105 110  
 Ser Glu Phe Glu Ala Asp Ile Met Arg Gln His Ile Thr Tyr Met Asn  
 115 120 125  
 Ile Trp Glu Asn Ser Tyr Phe Leu Arg Val Phe Thr Gln Val Val Asn  
 130 135 140  
 Val Leu Asn Gly Leu Asn Tyr Asn Trp Asn Leu Thr Phe Lys Asn Leu  
 145 150 155 160  
 Lys Pro Asn Gln Lys Ser Glu Gln Ile Arg Glu Gly Ile Ile Lys Leu  
 165 170 175  
 Leu Asp Leu Ser Pro Asn Phe Gln Arg Ile Leu Lys Asp Ala Tyr Val  
 180 185 190  
 Gly Gln Ile Arg Asn Ala Val Ala His Thr Gln Tyr His Cys Ile Gln  
 195 200 205  
 Gly Gly Ile Leu Tyr Asp Asn Tyr Ser Pro Ser Ser Lys Tyr Ser Ile  
 210 215 220  
 Leu Gln Gly Leu Ser Tyr Glu Glu Trp Glu Lys Lys Tyr Val Tyr Ser  
 225 230 235 240  
 Phe Phe Ile Phe Ile Gly Ile Phe Gln Met Leu Lys Gln Ile Thr Asn  
 245 250 255  
 Glu Phe Tyr Leu Pro Cys Ser Gln Leu Thr Phe Ala Lys Gly Val Pro  
 260 265 270  
 Ile Gln Ile Pro Leu Ser Asp Asn Lys Gly Tyr Ala Glu Thr Tyr Leu  
 275 280 285  
 Tyr Pro Asn Gln Lys Gly Asp Ile Trp Arg Phe Thr Arg Ile Ile  
 290 295 300

<210> 5662  
 <211> 70  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5662

Ala	Tyr	Arg	Leu	Asn	Glu	Lys	Gln	Leu	Ser	Met	Tyr	Ile	His	His	Leu
1				5					10					15	
Met	Val	Lys	Asp	His	Lys	Arg	Lys	Tyr	Tyr	Tyr	Leu	Ser	Tyr	Glu	Lys
		20						25					30		
Arg	Phe	Ile	Phe	Ile	Ile	Asn	Leu	Val	Ser	Ala	Lys	Leu	Gln	Asn	Ser
		35				40						45			
Asn	Gly	Leu	Lys	Lys	Lys	Lys	Gln	Ser	Asn	Ser	Ser	Ala	Leu	Ile	Cys
	50					55					60				
Phe	Tyr	Arg	Asn	Met	Ala										
65					70										

&lt;210&gt; 5663

&lt;211&gt; 81

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5663

Arg	Trp	Arg	Glu	Thr	Ser	Val	Asn	Asn	Phe	Ser	Ser	Leu	Gln	Ser	Cys
1				5					10					15	
Phe	Ile	Asn	Val	Asn	Glu	Ile	Lys	Val	Arg	Phe	Gly	Gly	Ala	Pro	Gly
		20						25					30		
Leu	Val	Met	Thr	Lys	Ser	Trp	Arg	Asp	Gly	Tyr	Arg	Pro	Cys	Glu	Asp
		35				40						45			
Ala	Met	Ser	Leu	Lys	Glu	Ser	Leu	Ala	Ser	Ile	Gly	Met	Thr	Thr	Val
	50					55					60				
Lys	Val	Pro	Phe	Gly	Glu	Ser	Lys	Phe	Asp	Thr	Pro	Phe	Ser	Asn	Ser
65					70				75						80
Ser															

&lt;210&gt; 5664

&lt;211&gt; 69

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5664

Ser	Lys	Leu	Phe	Ala	Arg	Leu	Leu	Thr	Leu	Ile	His	Leu	Lys	Val	Gly
1				5					10					15	
Ser	Ser	Thr	Pro	Phe	Ser	Leu	Leu	Leu	Lys	Gly	Val	Lys	Leu	Pro	Thr
		20						25					30		
Met	Val	Cys	Tyr	Ala	Ser	Gly	Leu	Pro	Asp	Ser	Gln	Glu	Val	His	Val
		35				40						45			
Ser	Gln	Lys	Asp	Val	Tyr	Ala	Ala	Phe	Gly	Arg	Tyr	Leu	Leu	Arg	Phe
	50					55					60				
Ala	Phe	Asn	Val	Glu											
65															

&lt;210&gt; 5665

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5665

Tyr	Lys	Met	Glu	Leu	Glu	Thr	Ile	Gly	Glu	Asn	Ala	Gly	Lys	Val	Trp
1				5					10					15	
Arg	Thr	Leu	Asn	Glu	Met	Arg	Gly	Glu	Ile	Ser	Ile	Gln	Glu	Leu	Ser
		20						25					30		
Arg	Lys	Ile	Asn	Leu	Ser	Ala	Glu	Asp	Val	Ala	Leu	Ala	Val	Gly	Trp

35 40 45  
 Leu Ala Arg Glu Asn Asn Ile Phe Ile Gln Arg His Asn Tyr Leu Leu  
 50 55 60  
 Tyr Val Ser His Asp Ala Phe  
 65 70

<210> 5666  
 <211> 268  
 <212> PRT  
 <213> B.fragilis

<400> 5666  
 Met Lys Met Glu Asn Ser Val Leu Thr Gly Lys Pro Tyr Asn Ile Gly  
 1 5 10 15  
 Tyr Ala Leu Ser Gly Gly Phe Ile Lys Gly Phe Ala His Leu Gly Val  
 20 25 30  
 Ile Gln Ala Leu Leu Glu His Asp Ile Lys Pro Asp Ile Ile Ser Gly  
 35 40 45  
 Val Ser Ala Gly Ala Leu Ala Gly Val Phe Tyr Ala Asp Gly Asn Glu  
 50 55 60  
 Pro Tyr Arg Val Leu Asp Tyr Phe Ser Gly His Lys Phe Gln Asp Leu  
 65 70 75 80  
 Thr Lys Leu Val Ile Pro Lys Val Gly Leu Phe Ala Leu Gly Glu Phe  
 85 90 95  
 Ile Asp Phe Leu Lys Ser Asn Leu Lys Ala Gln Lys Leu Glu Asp Leu  
 100 105 110  
 Lys Leu Pro Leu Ile Ile Thr Ala Thr Asp Leu Asp His Gly Arg Ser  
 115 120 125  
 Met His Phe His Lys Gly Asn Ile Ala Glu Arg Val Ala Ala Ser Cys  
 130 135 140  
 Cys Met Pro Val Leu Phe Thr Pro Val Lys Ile Gly Asn Thr His Tyr  
 145 150 155 160  
 Val Asp Gly Gly Leu Leu Met Asn Leu Pro Val Ser Thr Ile Arg Asn  
 165 170 175  
 Glu Cys Glu Lys Val Val Ala Val Asn Val Ser Pro Leu Met Ala Glu  
 180 185 190  
 Lys Tyr Lys Met Asn Ile Val Ser Ile Ala Met Arg Ser Tyr His Phe  
 195 200 205  
 Met Phe Arg Ala Asn Thr Phe Pro Glu Arg Asp Asn Cys Asp Leu Leu  
 210 215 220  
 Ile Glu Pro Tyr Asn Leu Glu Gly Tyr Ser Asn Thr Glu Leu Glu Lys  
 225 230 235 240  
 Ala Glu Glu Ile Phe Glu Gln Gly Tyr Asn Thr Ala Ser Glu Val Leu  
 245 250 255  
 Asp Gln Leu Ile Glu Glu Lys Gly Lys Ile Trp Lys  
 260 265

<210> 5667  
 <211> 406  
 <212> PRT  
 <213> B.fragilis

<400> 5667  
 Arg Asp Ala Asp Ser Leu Gln Leu Phe Cys Gln His Phe Cys Tyr Asn  
 1 5 10 15  
 Trp Ile Ile Asn Leu Phe Tyr Pro Met Lys Val His Glu Tyr Gln Ala  
 20 25 30  
 Lys Glu Ile Phe Ser Thr Tyr Gly Ile Pro Val Glu Arg His Ala Leu  
 35 40 45

5666  
 5667  
 406  
 PRT  
 B.fragilis

Cys His Thr Ala Asp Gly Ala Val Ala Ala Tyr His Arg Met Gly Val  
 50 55 60  
 Asn Arg Val Ala Ile Lys Ala Gln Val Leu Thr Gly Gly Arg Gly Lys  
 65 70 75 80  
 Ala Gly Gly Val Lys Leu Ala Asn Asn Asp Arg Asp Val Tyr Gln Tyr  
 85 90 95  
 Ala Gln Thr Ile Leu Glu Met Thr Ile Lys Gly Tyr Pro Val Thr Lys  
 100 105 110  
 Ile Leu Leu Ser Glu Ala Val Asn Ile Ala Ala Glu Tyr Tyr Ile Ser  
 115 120 125  
 Phe Thr Ile Asp Arg Asn Thr Arg Ser Val Thr Leu Ile Met Ser Ala  
 130 135 140  
 Ala Gly Gly Met Asp Ile Glu Glu Val Ala Arg Gln Ser Pro Glu Lys  
 145 150 155 160  
 Ile Ile Arg Cys Ser Ile Asp Pro Leu Ile Gly Val Pro Asp Tyr Leu  
 165 170 175  
 Ala His Lys Phe Ala Phe Ser Leu Phe Glu Gln Ala Glu Gln Ala Asn  
 180 185 190  
 Arg Met Ala Thr Ile Ile Gln Asp Leu Tyr Lys Ala Phe Ile Glu Lys  
 195 200 205  
 Asp Ala Ser Leu Ala Glu Ile Asn Pro Leu Val Leu Thr Pro Val Gly  
 210 215 220  
 Thr Leu Leu Ala Ile Asp Ala Lys Met Val Phe Asp Asp Asn Ala Leu  
 225 230 235 240  
 Tyr Arg His Pro Asp Leu Gln Lys Leu Ser Glu Pro Thr Glu Asp Glu  
 245 250 255  
 Lys Leu Glu Ala Ile Ala Lys Glu Arg Gly Phe Ser Tyr Val Arg Met  
 260 265 270  
 Asp Gly Glu Ile Gly Cys Met Val Asn Gly Ala Gly Leu Ala Met Thr  
 275 280 285  
 Thr Met Asp Met Ile Lys Leu Tyr Gly Gly Asn Pro Ala Asn Phe Leu  
 290 295 300  
 Asp Ile Gly Gly Ser Ser Asn Pro Val Lys Val Ile Glu Ala Met Arg  
 305 310 315 320  
 Leu Leu Leu Asp Asp Lys Lys Val Lys Val Val Phe Ile Asn Ile Phe  
 325 330 335  
 Gly Gly Ile Thr Arg Cys Asp Asp Val Ala Ile Gly Leu Leu Gln Ala  
 340 345 350  
 Phe Glu Gln Ile Gln Thr Asp Ile Pro Ile Ile Val Arg Leu Thr Gly  
 355 360 365  
 Thr Asn Gly Asn Met Gly Arg Glu Leu Leu Arg Lys Asn Asn Arg Phe  
 370 375 380  
 Gln Val Ala Gln Thr Met Glu Glu Ala Thr Lys Met Ala Ile Glu Ser  
 385 390 395 400  
 Leu Lys Lys Glu Ser Ile  
 405

&lt;210&gt; 5668

&lt;211&gt; 480

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5668

His Gln Ser Leu Phe Leu Met Lys Lys Lys Gln Pro Glu Pro Gln Leu  
 1 5 10 15  
 Phe Gln Lys Gly Tyr Glu Thr Tyr Ala Val Thr Lys Gly Gly Lys Gly  
 20 25 30  
 Ile Ile Lys Phe Ser Asp Asn Ser Asp Ile Thr Thr Asp Arg Glu Thr  
 35 40 45

Ser Thr Val Glu Val Val Pro Lys Gly Lys Glu Ala Pro Ile Lys Phe  
 50 55 60  
 Val Pro Arg Gly Arg Asn Asn Asn Met Met Tyr Asp Ile Met Lys Lys  
 65 70 75 80  
 Ile Gly Ala Asn Val Thr Val Gly Ser Asn Val Glu Phe Lys Asn Lys  
 85 90 95  
 Val Val Tyr Gly Asp Ser Val Leu Val Tyr Arg Lys Tyr Arg Asp Lys  
 100 105 110  
 Glu Thr Arg Lys Ile Ile Lys Glu Glu Val Leu Pro Glu Glu Tyr Pro  
 115 120 125  
 Asp Ile Phe Asp Phe Ile Glu Asn Asn Asp Ile Pro Phe Ile Arg Met  
 130 135 140  
 Glu Ile Ala Asn Asp Leu Val Ile Phe Tyr Asp Ala Tyr Val Glu Tyr  
 145 150 155 160  
 Ile Phe Asn Gln Asp Thr Gln Pro Arg Leu Val Gln Val Lys Ala Lys  
 165 170 175  
 Glu Ala Thr Cys Ser Arg Ile Ser Val Ile Asp Glu Arg Thr Gly Lys  
 180 185 190  
 Ser Glu Tyr His Gly Tyr Ser Ala Lys Trp His Glu Gly Met Pro Asp  
 195 200 205  
 Asp Val Ile Ala Thr Pro Leu Leu Asp Arg Gln Ala Pro Leu Arg Asp  
 210 215 220  
 Leu Lys Thr Arg Met Gly Leu Phe Pro Asn Glu Lys Gly Ile Lys Glu  
 225 230 235 240  
 Ile Val Lys Asp Arg Arg Phe Ile His Asn Ile Arg Ile Ala Thr Pro  
 245 250 255  
 Gly Arg Phe Tyr Tyr Ser Lys Pro Tyr Trp Trp Ser Val Phe Val Ser  
 260 265 270  
 Gly Trp Tyr Asp Phe Gly Asn Ala Ile Pro Ile Phe Lys Lys Ala Leu  
 275 280 285  
 Ile Lys Asn Gln Met Ala Leu Arg Tyr Ile Val Tyr Ile Lys Glu Asp  
 290 295 300  
 Phe Trp Gly Lys Leu Tyr Ala Asp Glu Lys Ile Thr Asn Glu Ala Asp  
 305 310 315 320  
 Gln Ala Val Arg Arg Glu Thr Phe Leu Gln Asp Met Asn Asp Phe Leu  
 325 330 335  
 Ala Gly Glu Glu Asn Ala Gly Lys Gly Phe Val Ser His Phe Arg Tyr  
 340 345 350  
 Asp Arg Val Lys Gly Phe Glu Asp Lys Asp Ile Ile Ile Asn Thr Leu  
 355 360 365  
 Asp Ser Phe Phe Lys Gly Gly Glu Tyr Ile Glu Asp Ser Glu Glu Val  
 370 375 380  
 Ser Asn Thr Ile Cys Tyr Gly Met Asn Val His Pro Ser Ile Ile Gly  
 385 390 395 400  
 Ala Ala Pro Gly Lys Gly Lys Ser Ile Asn Gly Thr Glu Ala Arg Glu  
 405 410 415  
 Leu Phe Ile Ile Glu Gln Ala Leu Met Lys Met Phe Gln Glu Ala Thr  
 420 425 430  
 Leu Thr Pro Leu Tyr Phe Ala Lys Ala Val Asn Gly Trp Pro Lys Asp  
 435 440 445  
 Ile Tyr Phe Ser Val Thr Asn Cys Gln Leu Thr Thr Leu Asp Lys Gly  
 450 455 460  
 Thr Gly Ala Thr Lys Asn Thr Gly Leu Thr Ser Glu Thr Glu Glu Lys  
 465 470 475 480

&lt;210&gt; 5669

&lt;211&gt; 214

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5669

Ser Asn Ile Leu Gly Gly Leu Thr Met Gly Tyr Tyr Lys Arg Leu Ser  
 1 5 10 15  
 Thr Tyr Arg Ala Glu Val Lys Arg Tyr Asn Ala Ser Arg Arg Lys Ala  
 20 25 30  
 Thr Gln Leu Thr Asn Ala Pro Ala Ser Gly Leu Ile Arg Leu Glu Thr  
 35 40 45  
 Val Ser Glu Thr Glu Arg Phe Ser Met Ala Gln Asp Ala Asp Arg Leu  
 50 55 60  
 Thr Ala Tyr Asn Lys Ala Val Glu Lys Trp Gln Asp Ser Val Ala Arg  
 65 70 75 80  
 Gln Leu Arg Ala Gly Ile Ala Gly Arg Ser Met Arg Ile Ala Arg Glu  
 85 90 95  
 Leu Glu Pro Arg Ala Tyr Thr Asp Lys Tyr Gly Ile Ile Asn Arg Leu  
 100 105 110  
 Gly Phe Ser Phe Pro Arg His Gly Ile Tyr Ile His Lys Gly Ala Gly  
 115 120 125  
 Glu Gly Gln Gly Gly Phe Ile Gly Ser Lys Trp Asn Tyr Leu Lys Lys  
 130 135 140  
 Ile Asn Gly Val Glu Ile Asp Thr Gly Ile Val Arg His Thr Asn Leu  
 145 150 155 160  
 Lys Ser Leu Gly Arg Gln Asn Glu Gly Asn Arg Arg Ala Tyr Glu Trp  
 165 170 175  
 Phe Asp Pro Val Ile Arg Asn Arg Ile Asn Glu Leu Ala Asp Ile Val  
 180 185 190  
 Thr Asp Tyr Phe Asp Thr Met Leu Ile Asp Ala Thr Arg Ile Tyr Ile  
 195 200 205  
 Asp Lys Arg Asn Ser Leu  
 210

&lt;210&gt; 5670

&lt;211&gt; 733

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5670

His Met Ser Leu Lys Ile Lys Asn Gln Leu Gly Ile Phe Asp Leu Gln  
 1 5 10 15  
 Asn Asp Phe Ser Ile Glu Ile Glu Asp Thr Ser Pro Ile Tyr Asn Glu  
 20 25 30  
 Arg Gly Ser Gln Ser Val Pro Ala Thr Leu Pro Ala Ser Arg Asn Asn  
 35 40 45  
 Leu Ser Leu Ile Thr His Val His Arg Pro Asp Ser Thr Tyr Ser Pro  
 50 55 60  
 Ala Pro Asp Ala Arg Val Thr Val Ser Asp Gly Val Tyr Asn Arg Ile  
 65 70 75 80  
 Gly Lys Met Asn Ile Thr Gln Ala Ser Lys Ser Gly Gly Ile Val Ser  
 85 90 95  
 Asn Ile Gly Phe Asp Glu Ser Glu Leu Tyr Ser Glu Trp Asn Ala Val  
 100 105 110  
 Ser Leu Arg Ser Leu Ser Ala Pro Val Ile Arg Pro Glu Gly Gly Thr  
 115 120 125  
 Thr Gly Val Ile Ser Leu Leu Asn Ser Ile Met Asn Glu Thr Ile Val  
 130 135 140  
 Asp Asp Ala Leu Ser Ile Phe Pro Ile Cys Val Ser Ile Pro Ser His  
 145 150 155 160  
 Ala Thr Thr Val Asp Asp Thr Glu Thr Thr Thr Tyr Tyr Pro Glu Tyr  
 165 170 175

[illegible]

				645					650					655	
Ser	Asp	Gln	Val	Ser	Asp	Ile	Glu	Ile	Pro	Phe	Thr	Val	Pro	Thr	Gln
				660					665					670	
Glu	Asp	Tyr	Glu	Ala	Asn	Lys	Glu	Phe	Phe	Ile	Lys	Glu	Ile	Asn	Tyr
				675					680					685	
Ser	Phe	Asp	Leu	Tyr	Tyr	Lys	Val	Arg	Val	Pro	Asn	Gly	Gln	Thr	Ser
				690					695					700	
Gln	Gly	Asp	Ile	Ile	Trp	Lys	Asp	Lys	Glu	Tyr	Gly	Gly	Val	His	Tyr
705					710				715						720
Ala	Ile	Thr	Tyr	Gly	Leu	Ser	Val	Lys	Ala	Glu	Leu	Leu			
				725					730						

&lt;210&gt; 5671

&lt;211&gt; 73

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5671

Gln	Phe	Pro	Leu	Leu	Pro	Leu	Ala	Arg	Leu	Ile	Asn	Leu	Ile	Phe	Ile
1				5					10					15	
Ile	Leu	Phe	Phe	Leu	Met	Gln	Ile	Ala	Gly	Asn	Phe	Tyr	Gly	Lys	Leu
				20				25					30		
Ser	Ala	Asn	Ile	His	Lys	Lys	Gly	Asn	Asn	Gln	Thr	Leu	Val	Phe	Phe
				35			40					45			
Phe	Leu	Ser	Met	Lys	Ser	Val	Ile	Phe	Ala	Lys	Ile	Ser	Lys	Ala	Ile
	50					55					60				
Ala	Ala	Thr	Lys	Pro	Ile	Ala	Ala	Lys							
65					70										

&lt;210&gt; 5672

&lt;211&gt; 149

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5672

Lys	Tyr	Lys	Leu	Met	Ile	Tyr	Lys	Phe	Leu	Phe	Pro	Leu	Lys	Pro	Asp
1				5					10					15	
Ser	Ala	Gly	Ala	Ser	Leu	Phe	Leu	Leu	Ile	Leu	Arg	Ile	Ser	Phe	Gly
			20					25					30		
Leu	Leu	Leu	Met	Asn	His	Gly	Ile	Gln	Lys	Trp	Ser	Asn	Phe	Gln	Glu
			35				40					45			
Leu	Ser	Ile	Ser	Phe	Pro	Asp	Pro	Leu	Gly	Leu	Gly	Ser	Pro	Leu	Ser
	50					55					60				
Leu	Gly	Leu	Ala	Val	Phe	Ala	Glu	Leu	Ala	Cys	Ser	Met	Ala	Phe	Ile
65					70					75				80	
Ile	Gly	Phe	Leu	Tyr	Arg	Leu	Ala	Met	Ile	Pro	Met	Ile	Phe	Thr	Met
				85					90					95	
Val	Ile	Ala	Phe	Phe	Val	Ile	His	Ala	Asn	Asp	Val	Phe	Ala	Met	Lys
			100					105					110		
Glu	Leu	Ala	Leu	Val	Tyr	Leu	Ile	Ile	Phe	Val	Leu	Met	Tyr	Ile	Ser
			115				120					125			
Gly	Pro	Gly	Lys	Tyr	Ser	Val	Asp	Tyr	Val	Ile	Gly	Arg	Gln	Leu	Lys
	130					135					140				
Asn	Lys	Arg	Lys	Leu											
145															

&lt;210&gt; 5673

&lt;211&gt; 79

&lt;212&gt; PRT



&lt;213&gt; B.fragilis

&lt;400&gt; 5673

Phe Glu Ile Cys Met Thr Tyr Asn Thr Gly Ile Tyr Leu Asn Ser Ile  
 1 5 10 15  
 Asn Phe Phe Glu Val Ile Pro Phe Gly Thr Asp Glu Ala Thr Leu Thr  
 20 25 30  
 Phe Ala Gly Ala Leu Val Asp Val Asp Ser Met Ser Arg Glu Gly Glu  
 35 40 45  
 Thr Lys Thr Val Asp Asn Thr Val Phe Val Gly Val Gly Pro Trp Leu  
 50 55 60  
 Lys Phe Thr Gly Tyr Ser His Thr Ala Ala Gly Tyr Ser Gly Ser  
 65 70 75

&lt;210&gt; 5674

&lt;211&gt; 221

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5674

Leu Val Thr Cys Ile Thr Asp Ser Leu Thr Lys Met Lys Lys Leu Leu  
 1 5 10 15  
 Thr Lys Gly Gln Ile Ala Ile Leu Val Ile Phe Ser Val Leu Ile Ile  
 20 25 30  
 Asp Gln Val Ile Lys Ile Trp Ile Lys Thr His Met Tyr Trp His Glu  
 35 40 45  
 Ser Ile Arg Ile Thr Asp Trp Phe Tyr Ile Tyr Phe Thr Glu Asn Asn  
 50 55 60  
 Gly Met Ala Phe Gly Met Glu Leu Phe Gly Lys Leu Phe Leu Thr Thr  
 65 70 75 80  
 Phe Arg Ile Val Ala Val Gly Leu Ile Gly Trp Tyr Leu Tyr Lys Ile  
 85 90 95  
 Val Lys Arg Gly Leu Lys Thr Gly Tyr Ile Ile Cys Val Ser Leu Ile  
 100 105 110  
 Leu Thr Gly Ala Leu Gly Asn Ile Ile Asp Ser Val Phe Tyr Gly Val  
 115 120 125  
 Ile Phe Asn Glu Ser Thr His Ser Gln Ile Ala Ser Phe Met Pro Asp  
 130 135 140  
 Gly Gly Gly Tyr Ser Thr Trp Phe Tyr Gly Lys Val Val Asp Met Phe  
 145 150 155 160  
 Tyr Phe Pro Ile Ile Asp Thr Asn Trp Pro Thr Trp Met Pro Phe Val  
 165 170 175  
 Gly Gly Glu His Phe Ile Phe Phe Ser Pro Ile Phe Asn Phe Ala Asp  
 180 185 190  
 Ala Ala Ile Ser Cys Gly Ile Ile Ala Leu Leu Leu Phe Tyr Ser Lys  
 195 200 205  
 Tyr Leu Asn Asp Ser Tyr His His Ser Val Thr Lys Lys  
 210 215 220

&lt;210&gt; 5675

&lt;211&gt; 334

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5675

Pro Tyr His Cys Asn Lys Ile Ser Ala Met Ser Gln Lys Arg Ile Ile  
 1 5 10 15  
 Leu Ser Asp Ser Ser Leu Asn Arg Tyr Gly Tyr Arg Val Leu Thr Ala  
 20 25 30

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<210> 5676
<211> 468
<212> PRT
<213> B.fragilis
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Leu	Lys	Glu	Cys	Thr	Met	Lys	Lys	Ser	Thr	Lys	Phe	Ile	Ile	Ala	Leu
1				5					10					15	
Leu	Val	Thr	Val	Gly	Ala	Leu	Ala	Ile	Thr	Tyr	Arg	Val	Val	Asn	Gln
			20					25					30		
Ala	Pro	Ser	Lys	Asp	Leu	Ala	Ala	Asp	Ala	Gln	Met	Gln	Glu	Ile	Ile
		35					40					45			
Thr	Ser	Gly	Gly	Cys	Leu	Gln	Cys	His	Ser	Gly	Ser	Pro	Asp	Leu	Pro
	50					55					60				
Phe	Tyr	Ala	Asn	Trp	Pro	Val	Ala	Ser	Gly	Met	Val	Gln	Lys	Asp	Val
65				70					75					80	
Thr	Gln	Gly	Tyr	Arg	Ala	Phe	Asp	Met	Thr	Glu	Met	Ala	Glu	Ala	Leu
			85						90				95		
Lys	Ala	Gly	Lys	Pro	Val	Gly	Lys	Val	Ala	Leu	Ala	Lys	Val	Glu	Lys
			100					105					110		

Val Ile Met Asp Gly Thr Met Pro Lys His Ala Tyr Tyr Met Val His  
 115 120 125  
 Trp Gly Ser Ser Val Thr Asp Ala Lys Lys Glu Met Ala Met Ala Trp  
 130 135 140  
 Val Lys Gln His Arg Leu Ala His Tyr Ala Asn Gly Leu Ala Ala Ala  
 145 150 155 160  
 Glu Phe Ala Asn Glu Pro Ile Arg Pro Ile Ala Asp Ser Ile Pro Val  
 165 170 175  
 Asp Met Arg Lys Val Ile Leu Gly Asp Met Leu Tyr His Asp Thr Arg  
 180 185 190  
 Leu Ser Ala Asp Asn Thr Val Ser Cys Ala Ser Cys His Gly Leu Asn  
 195 200 205  
 Thr Gly Gly Val Asp Asn Lys Gln Tyr Ser Glu Gly Val Gly Gly Gln  
 210 215 220  
 Phe Gly Gly Val Asn Ala Pro Thr Val Tyr Asn Ala Ala Tyr Asn Phe  
 225 230 235 240  
 Val Gln Phe Trp Asp Gly Arg Ala Gly Thr Leu Ala Glu Gln Ala Ala  
 245 250 255  
 Gly Pro Pro Leu Asn Pro Val Glu Met Ala Cys Gln Ser Phe Asp Glu  
 260 265 270  
 Ile Ile Ala Lys Leu Glu Gln Asp Ala Asn Phe Thr Lys Ala Phe Leu  
 275 280 285  
 Ala Val Tyr Pro Asp Gly Tyr Ser Glu Gln Asn Ile Thr Asn Ala Ile  
 290 295 300  
 Glu Glu Phe Glu Lys Thr Leu Leu Thr Pro Asn Ser Arg Phe Asp Leu  
 305 310 315 320  
 Tyr Leu Lys Gly Glu Lys Thr Ala Ile Asn Asp Ile Glu Leu Ala Gly  
 325 330 335  
 Tyr Glu Leu Phe Lys Lys Tyr Asp Cys Ala Thr Cys His Val Gly Glu  
 340 345 350  
 Thr Leu Gly Gly Gln Ser Tyr Glu Leu Met Gly Val Lys Arg Asp Tyr  
 355 360 365  
 Phe Ala Asp Arg Gly Ile Glu Leu Thr Glu Glu Asp Asn Gly Arg Phe  
 370 375 380  
 Lys Gln Thr Arg Asn Glu Arg Asp Lys His Arg Phe Lys Val Pro Gly  
 385 390 395 400  
 Leu Arg Asn Ile Ala Leu Thr Ala Pro Tyr Phe His Asp Gly Ser Met  
 405 410 415  
 Lys Thr Met Lys Glu Ala Val Asp Tyr Met Ala Lys Tyr Gln Met Asp  
 420 425 430  
 Leu Asn Leu Pro Glu Asp Glu Leu Asn Lys Ile Val Ala Phe Leu Glu  
 435 440 445  
 Thr Leu Thr Gly Glu Tyr Lys Gly Lys Pro Leu Thr Asn Asp Asn Gln  
 450 455 460  
 Thr Lys Ala Leu  
 465

&lt;210&gt; 5677

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5677

Val Thr Thr Cys Ser Pro Pro Ala Pro Gly Glu Asp Leu Glu Thr Gly  
 1 5 10 15  
 Val Leu Lys Leu Thr Asp Ser Pro Ala Ile Gln Ser Phe Pro Lys Arg  
 20 25 30  
 Val Gly Val Val Glu Asp Val Met Leu Cys Ala Phe Ser Ala Thr Val  
 35 40 45

Thr Pro Ser Leu Ala Arg Val Ala Thr Thr Phe Thr Asp Phe Lys  
 50 55 60

<210> 5678  
 <211> 262  
 <212> PRT  
 <213> B.fragilis

<400> 5678  
 Ile Ser Ile Arg Phe Val Leu Tyr Ser Gln Ile Cys Arg Tyr Met Lys  
 1 5 10 15  
 Asn Ser Asp Leu Thr Thr Tyr Gly Glu Tyr Leu Glu Lys Leu Ser Pro  
 20 25 30  
 Lys His Gly Arg Glu Lys Val Phe Asn Asp Phe Leu Gln Ile Val Val  
 35 40 45  
 Cys Cys Leu Ser Met Gly Arg Lys Glu Glu Leu Tyr Phe Lys Thr Ile  
 50 55 60  
 Lys Pro Tyr Asp Lys Thr Glu Leu Asp Leu Phe Ser Gln Ala Phe Ala  
 65 70 75 80  
 Ala Leu Val Met Gln Met Asp Arg Gln Pro Leu Val Asp Pro Phe Gly  
 85 90 95  
 Asp Tyr Phe Gln Glu Phe Leu Ser Asn Ala Gln Asn Gly Gln Phe Phe  
 100 105 110  
 Thr Pro Phe Gly Val Cys Glu Leu Met Asn Gln Leu Ile Thr Ala Pro  
 115 120 125  
 Lys Val Asn Asp Gln Pro Lys Gln Gly Asp Arg Arg Val Leu Asp Pro  
 130 135 140  
 Ala Cys Gly Ser Gly Arg Leu Leu Leu Ser Ala Ala Gln Lys Asp Arg  
 145 150 155 160  
 Ala Leu Thr Phe Val Gly Ile Asp Ile Ser Tyr Thr Cys Cys Leu Met  
 165 170 175  
 Thr Ile Ile Asn Leu Cys Leu Asn Ser Leu Asn Gly Glu Val Leu His  
 180 185 190  
 Met Asn Ala Leu Thr Asp Gln Cys Trp His Arg Trp Leu Ile Ile Val  
 195 200 205  
 Asp Ser Val Thr Lys Ile Pro Thr Val Tyr Glu Val Glu Ala Gly Ile  
 210 215 220  
 Ile Asn Gln Pro Pro Ala Cys Ala Asp Asp Leu Lys Pro Leu Pro Val  
 225 230 235 240  
 Thr Gly Ile Ile Gln Pro Val Lys Asn Met Ile Pro Ala Asn Phe Val  
 245 250 255  
 Arg Tyr Thr Pro Lys Cys  
 260

<210> 5679  
 <211> 121  
 <212> PRT  
 <213> B.fragilis

<400> 5679  
 Arg Asn Leu Arg Pro Ile Arg Val Ser Glu Pro Ile Pro Leu Arg Thr  
 1 5 10 15  
 Ile Phe Thr Ser Ala Pro Thr Asn Ser His Arg Leu Ala Met Ser Phe  
 20 25 30  
 Met Lys Leu Ile Arg Val Ala Asn Ile Glu Phe Ala Ala Tyr Leu Val  
 35 40 45  
 Ile Ser Ala Glu Gly Ile Ser Met Asn Ile Thr Arg Lys Leu Phe Ser  
 50 55 60  
 Met Asn Gly Leu Tyr Ser Leu Val Ile Asn Phe Ser Ala Arg Ser Asp

65		70		75		80									
Ser	Thr	Pro	Ile	Thr	Thr	Arg	Ser	Gly	Leu	Ile	Lys	Ser	Leu	Thr	Ala
			85						90					95	
Leu	Pro	Ser	Phe	Arg	Asn	Ser	Gly	Leu	Glu	Ala	Thr	Ser	Asn	Ser	Ile
			100					105					110		
Leu	Ala	Pro	Arg	Leu	Ser	Asn	Ser	Ser							
			115					120							

<210> 5680  
 <211> 300  
 <212> PRT  
 <213> B.fragilis

<400> 5680															
Asn	Gly	Tyr	Arg	Ile	Ile	Lys	Glu	Arg	Ile	Asp	Met	Ser	Ile	Leu	Ile
1				5					10					15	
Asp	Lys	Ser	Thr	Arg	Leu	Leu	Val	Gln	Gly	Ile	Thr	Gly	Arg	Asp	Gly
			20					25					30		
Leu	Phe	His	Ala	Lys	Lys	Met	Ala	Glu	Tyr	Gly	Thr	Asn	Val	Val	Gly
		35					40					45			
Gly	Thr	Ser	Pro	Gly	Lys	Gly	Gly	Thr	Met	Ile	Asp	Asp	Thr	Phe	Pro
	50					55					60				
Val	Phe	Asn	Thr	Met	His	Glu	Ala	Val	Arg	Arg	Thr	Gln	Ala	Asn	Thr
65					70				75						80
Ser	Val	Ile	Phe	Val	Pro	Ala	Arg	Phe	Ala	Ala	Asp	Ala	Ile	Met	Glu
			85					90						95	
Ala	Ala	Asp	Ala	Gly	Ile	Arg	Leu	Ile	Ile	Cys	Ile	Thr	Glu	Gly	Ile
			100					105					110		
Pro	Thr	Leu	Asp	Val	Ile	Lys	Ala	Tyr	Arg	Phe	Val	Glu	Leu	Lys	Gly
			115				120					125			
Ala	Lys	Leu	Ile	Gly	Pro	Asn	Cys	Pro	Gly	Leu	Ile	Ser	Pro	Gly	Glu
	130					135					140				
Ser	Leu	Val	Gly	Ile	Leu	Pro	Gly	Gln	Val	Phe	Thr	Pro	Gly	Asn	Ile
145					150					155				160	
Gly	Val	Ile	Ser	Arg	Ser	Gly	Thr	Leu	Thr	Tyr	Glu	Ile	Val	Ser	His
			165					170						175	
Leu	Thr	Ala	Lys	Gly	Met	Gly	Gln	Ser	Thr	Ala	Ile	Gly	Met	Gly	Gly
			180					185					190		
Asp	Pro	Val	Val	Gly	Leu	Tyr	Phe	Arg	Asp	Leu	Leu	Gly	Met	Leu	Gln
		195					200					205			
Asn	Asp	Pro	Gln	Thr	Asp	Ala	Ile	Val	Met	Ile	Gly	Glu	Ile	Gly	Gly
	210					215					220				
Asn	Ala	Glu	Glu	Leu	Ala	Ala	Thr	Tyr	Ile	Arg	Glu	His	Val	Thr	Lys
225					230					235					240
Pro	Val	Val	Ala	Phe	Ile	Ala	Gly	Arg	Ser	Ala	Pro	Pro	Gly	Lys	Gln
			245						250					255	
Met	Gly	His	Ala	Gly	Ala	Ile	Ile	Ser	Gly	Ser	Ser	Gly	Ser	Ala	Thr
			260					265					270		
Glu	Lys	Ile	Ser	Ala	Leu	Glu	Ala	Ala	Gly	Ile	Arg	Val	Ala	Gly	Glu
		275					280					285			
Pro	Ser	Glu	Ile	Pro	Asp	Leu	Leu	Lys	Gly	Ser	Phe				
		290				295					300				

<210> 5681  
 <211> 586  
 <212> PRT  
 <213> B.fragilis

<400> 5681

Ser Lys Arg Leu Ile Lys Ala Ile Glu Ile Ile Lys Leu Ser Ile Leu  
 1 5 10 15  
 Asn Ser Ile Tyr Lys Met Lys Asn Glu Asn Lys Met Ile Ile Tyr Gln  
 20 25 30  
 Val Phe Thr Arg Leu Phe Gly Asn Asn Asn Asn His Cys Ile Tyr Asn  
 35 40 45  
 Gly Asp Ile Ser Gln Asn Gly Cys Gly Lys Met Ala Asp Phe Thr Ala  
 50 55 60  
 Lys Ala Leu Gly Glu Ile Lys Lys Leu Gly Ala Thr His Ile Trp Tyr  
 65 70 75 80  
 Thr Gly Ile Ile Glu His Ala Ser Gln Thr Asp Tyr Arg Arg Tyr Asn  
 85 90 95  
 Ile Arg Pro Asp His Pro Ala Ile Val Lys Gly Lys Ala Gly Ser Pro  
 100 105 110  
 Tyr Ala Ile Lys Asp Tyr Tyr Asp Val Asp Pro Asp Leu Ala Thr Asp  
 115 120 125  
 Val Pro Gly Arg Met Lys Glu Phe Glu Asn Leu Val Ser Arg Thr His  
 130 135 140  
 Arg Ala Gly Leu Lys Val Ile Ile Asp Phe Val Pro Asn His Val Ala  
 145 150 155 160  
 Arg Gln Tyr His Ser Asp Ala Gln Pro Asp Gly Thr Thr Gln Leu Gly  
 165 170 175  
 Ala Asn Asp Asp Pro Asn Tyr Ser Phe Ser Pro Tyr Asn Asn Phe Tyr  
 180 185 190  
 Tyr Ile Pro Gln Ser Glu Leu His Gly Gln Phe Asp Met Thr Gly Asn  
 195 200 205  
 Ala Leu Glu Pro Tyr His Glu Phe Pro Ala Lys Ala Thr Gly Asn Asn  
 210 215 220  
 Arg Phe Asp Ala Tyr Pro Asn Ile Asn Asp Trp Tyr Glu Thr Val Lys  
 225 230 235 240  
 Leu Asn Tyr Gly Val Asp Tyr Gln Asn Gly Gly Thr Cys His Phe Ser  
 245 250 255  
 Pro Thr Pro Asp Thr Trp Thr Lys Met Leu Asp Ile Leu Leu Phe Trp  
 260 265 270  
 Ser Ser Lys Asn Ile Asp Gly Phe Arg Cys Asp Met Ala Glu Met Val  
 275 280 285  
 Pro Val Glu Phe Trp Glu Trp Ala Ile Pro Gln Val Lys Gln Glu Tyr  
 290 295 300  
 Pro Asn Ile Ile Phe Ile Ala Glu Val Tyr Asn Pro His Glu Tyr Lys  
 305 310 315 320  
 Asn Tyr Leu Phe Arg Gly Lys Phe Asp Phe Leu Tyr Asp Lys Val Gly  
 325 330 335  
 Leu Tyr Asp Thr Leu Arg Asn Val Ala Cys Gly Tyr Asp Ser Ala Thr  
 340 345 350  
 Ala Ile Thr Arg Ser Trp Gln Ser Leu Gly Gly Ile Glu Lys Arg Met  
 355 360 365  
 Leu Asn Phe Leu Glu Asn His Asp Glu Gln Arg Ile Ala Ser Asp Phe  
 370 375 380  
 Phe Ala Gly Asp Pro Arg Lys Gly Val Pro Ala Leu Ile Val Ser Ala  
 385 390 395 400  
 Cys Met Asn Thr Asn Pro Met Met Ile Tyr Phe Gly Gln Glu Phe Gly  
 405 410 415  
 Glu Met Gly Met Asp Ser Glu Gly Phe Ser Gly Arg Asp Gly Arg Thr  
 420 425 430  
 Thr Ile Phe Asp Tyr Trp Ser Val Asp Thr Ile Arg Arg Trp Arg Asn  
 435 440 445  
 Glu Gly Lys Phe Asp Gly Lys Met Leu Thr Glu Glu Gln Lys His Leu  
 450 455 460  
 Tyr Ala Ile Tyr Gln Arg Val Leu Thr Leu Cys Asn Glu Glu Gln Ala

[illegible][illegible][illegible][illegible]

Glu Gly Leu Arg Lys Lys Thr Ala Lys Leu Pro Tyr Pro Ile Tyr Ile  
                   180                  185                  190  
 Thr Asp Val Arg Pro Gly Phe Val Asp Thr Ala Met Ala Lys Gly Glu  
                   195                  200                  205  
 Gly Leu Phe Trp Ile Thr Pro Leu Asp Lys Ala Val Gln Gln Ile Tyr  
                   210                  215                  220  
 Arg Ala Ile Leu Arg Arg Arg Lys Val Ala Tyr Val Ser Lys Arg Trp  
 225                  230                  235                  240  
 Lys Tyr Val Ala Leu Leu Arg Met Ile Pro Ala Ser Ile Tyr Cys  
                   245                  250                  255  
 Lys Met

<210> 5684  
 <211> 472  
 <212> PRT  
 <213> B.fragilis

<400> 5684

Lys His Lys Arg Met Lys Asn Phe Met Asp Lys Asn Phe Leu Leu Gln  
 1                  5                  10                  15  
 Thr Glu Thr Ala Gln Glu Leu Tyr His Asn His Ala Ala Lys Met Pro  
                   20                  25                  30  
 Ile Ile Asp Tyr His Cys His Leu Asn Pro Gln Met Val Ala Asp Asp  
                   35                  40                  45  
 Tyr Arg Phe Lys Ser Leu Thr Glu Ile Trp Leu Gly Gly Asp His Tyr  
                   50                  55                  60  
 Lys Trp Arg Ala Met Arg Ser Asn Gly Val Asp Glu Cys Phe Cys Thr  
 65                  70                  75                  80  
 Gly Lys Glu Thr Ser Asp Trp Glu Lys Phe Glu Lys Trp Ala Glu Thr  
                   85                  90                  95  
 Val Pro Tyr Thr Phe Arg Asn Pro Leu Tyr His Trp Thr His Leu Glu  
                   100                  105                  110  
 Leu Lys Thr Ala Phe Gly Ile Asp Lys Val Leu Asn Pro Lys Thr Ala  
                   115                  120                  125  
 Arg Glu Ile Tyr Asp Glu Cys Asn Glu Lys Leu Ser Ser Gln Glu Tyr  
                   130                  135                  140  
 Ser Ala Arg Gly Met Met Arg Arg Tyr His Val Glu Thr Val Cys Thr  
 145                  150                  155                  160  
 Thr Asp Asp Pro Ile Asp Ser Leu Glu Tyr His Ile Arg Thr Arg Glu  
                   165                  170                  175  
 Ser Gly Phe Glu Ile Lys Met Leu Pro Thr Trp Arg Pro Asp Lys Val  
                   180                  185                  190  
 Met Ala Val Glu Val Pro Ser Asp Phe Arg Thr Tyr Ile Glu Lys Leu  
                   195                  200                  205  
 Ser Glu Ile Ser Glu Ile Thr Ile Ser Asp Tyr Asn Asp Met Ile Leu  
                   210                  215                  220  
 Ala Leu Arg Lys Arg His Asp Tyr Phe Ala Glu Gln Gly Cys Lys Leu  
 225                  230                  235                  240  
 Ser Asp His Gly Ile Glu Glu Phe Tyr Ala Glu Asp Tyr Thr Glu Gly  
                   245                  250                  255  
 Glu Ile Lys Thr Ile Phe Asn Lys Ile Tyr Gly Gly Ser Glu Leu Thr  
                   260                  265                  270  
 Lys Glu Glu Val Leu Lys Phe Lys Ser Ala Met Leu Ile Val Leu Gly  
                   275                  280                  285  
 Glu Met Asp Trp Glu Lys Gly Trp Thr Gln Gln Phe His Tyr Gly Ala  
 290                  295                  300  
 Ile Arg Asn Asn Asn Ser Arg Met Phe Lys Leu Leu Gly Pro Asp Thr  
 305                  310                  315                  320



[illegible]

Ser	Gly	Gly	Arg	Asp	Ser	Tyr	Leu	Pro	Leu	His	Lys	Leu	Asn	Asn	Tyr
1				5					10					15	
Leu	Ile	Met	Lys	Arg	Phe	Ile	Leu	Cys	Ile	Ser	Cys	Leu	Leu	Ile	Cys
			20					25					30		
Cys	Leu	Phe	Leu	Leu	Pro	Glu	Val	Gln	Ala	Ala	Ile	Pro	Asp	Thr	Gly
		35				40						45			
Asn	Trp	Ile	Ser	His	His	Leu	Leu	Thr	Ser	Asp	Gly	Leu	Thr	Val	Leu
	50					55					60				
Ala	Ala	Gly	Pro	Ala	Phe	Ala	Pro	Leu	Lys	Trp	Asn	Ile	Gly	Gln	Asn
65					70					75					80
Asn	Met	Gly	Gly	Tyr	Lys	Gly	Arg	Leu	Leu	Phe	Ile	Pro	Tyr	Asp	Ala
				85					90					95	
Pro	Ser	Thr	Val	Pro	Met	Ile	Pro	Ala	Lys	Pro	Thr	Thr	Asn	Glu	Asp
			100					105					110		
Leu	Ile	Thr	Ala	Ser	Gly	Ser	Phe	Thr	Phe	Pro	Ser	Gly	Gly	Thr	Tyr
		115					120					125			
Thr	Gln	Pro	Ile	Tyr	Leu	Tyr	Ser	Thr	Lys	Gly	Lys	Val	Gly	Tyr	Lys
	130					135					140				
Ala	Glu	Ile	Gln	Gly	Glu	Thr	Asp	Gly	Lys	Ser	Phe	Lys	Gln	Thr	Leu
145					150					155					160
Glu	Phe	Phe	Phe	Pro	Gly	Asn	Thr	Pro	Gly	Met	His	Ala	Phe	Ser	Thr
				165					170					175	
Leu	Val	Lys	Asn	Thr	Pro	Gly	Tyr	Phe	Val	Phe	Glu	Asp	Ser	Asp	Gly
			180					185					190		
Gln	Gln	Phe	Leu	Met	Gly	Lys	Pro	Gly	Met	Tyr	Ala	Asp	Val	Ser	Pro
		195					200					205			
Ser	Phe	Asp	Gly	Gly	Lys	Leu	Ala	Ala	Asp	Gln	Arg	Gly	Thr	Ala	Tyr
	210				215					220					
Thr	Ala	Thr	Cys	Asp	Ala	Asn	Glu	Ser	Ala	Val	Val	Leu	Gly	Thr	Pro
225					230					235					240
Ile	Asp	Met	Glu	Val	Ile	Ala	Gly	Leu	Lys	Pro	Ala	Pro	Ser	Pro	Gly
				245					250					255	

Gly

<210> 5686  
 <211> 130  
 <212> PRT  
 <213> B.fragilis

<400> 5686  
 Ile Ile Met Ser Leu Asn Asp Arg Leu Arg Ile Val Val Asn Glu Phe  
 1 5 10 15  
 Phe His Gly Asn Lys Ala Ala Phe Ala Arg Ala Ala Lys Ile Ser Asp  
 20 25 30  
 Gln Arg Ala Tyr Ser Cys Leu Ser Val Arg Ser Asn Thr Glu Pro Pro  
 35 40 45  
 Ala Arg Val Leu Glu Asn Leu Ala Lys Tyr Leu Pro Asn Leu Asn Ala  
 50 55 60  
 Thr Trp Leu Leu Thr Gly Glu Gly Glu Met Ile Gln Asp Lys Ser Thr  
 65 70 75 80  
 Pro Glu Met Pro Ile Thr Leu Val Ser Val Asn Glu Tyr Lys Ser Arg  
 85 90 95  
 Leu Gln Gln Met Glu Val Arg Leu Glu Ala Leu Arg Ala Gln Val Val  
 100 105 110  
 Leu Lys Asp Lys Leu Leu Ala Gly Leu Leu Arg Lys Val Glu Asn Lys  
 115 120 125  
 Thr Lys  
 130

<210> 5687  
 <211> 198  
 <212> PRT  
 <213> B.fragilis

<400> 5687  
 Asn Asn Met Ser Pro Arg Lys Leu Met Phe Trp Leu Phe Ala Cys Ile  
 1 5 10 15  
 Phe Leu Val Cys Ala Leu Arg Ala Gly Leu Leu Thr Ser Ala Asp Gln  
 20 25 30  
 Tyr Ile Tyr His Leu Arg Asn Met His Ala Ser Thr Phe Ala Tyr Arg  
 35 40 45  
 Tyr Asp Asp Phe Leu Pro Tyr Leu Pro Ile Val Ala Met Phe Val Leu  
 50 55 60  
 Lys Leu Thr Gly Val Lys Ser Arg Ser Asn Trp Lys Arg Met Leu Val  
 65 70 75 80  
 Ser Thr Ala Phe Ser Tyr Ile Leu Met Gly Ala Ile Val Leu Thr Met  
 85 90 95  
 Lys Ser Leu Ala Gly Val Leu Arg Pro Asp Gly Ser Asp Phe Leu Ser  
 100 105 110  
 Phe Pro Ser Gly His Thr Ala Thr Ala Phe Thr Ala Ala Thr Leu Leu  
 115 120 125  
 Tyr Lys Glu Tyr Gly Phe Lys Thr Pro Leu Ala Gly Ile Ala Thr Phe  
 130 135 140  
 Leu Pro Ala Val Val Thr Gly Phe Thr Arg Gln Leu Asn Asn Arg His  
 145 150 155 160  
 Trp Leu Ser Asp Val Leu Ala Gly Ala Ile Ile Gly Ile Met Met Val  
 165 170 175  
 Glu Leu Ala Tyr Phe Leu Thr Asp Arg Leu Leu Met Lys Thr Gly Ala  
 180 185 190  
 Gln Thr Cys Ser Lys Ser

5686  
 5687  
 198  
 PRT  
 B.fragilis

195

<210> 5688  
 <211> 532  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5688

Lys Leu Ser Gly Tyr Lys Asp Lys Ala Tyr Leu Cys Asn Val Phe Leu  
 1 5 10 15  
 Ile Gln Val Thr Met Asp Tyr Pro His Lys Ile Asn Lys Val Gln Ile  
 20 25 30  
 Arg Asn Leu Gln Ile Glu Asp Tyr Ala Gln Leu Ser Gln Ser Phe Thr  
 35 40 45  
 Arg Val Tyr Ser Asp Gly Ser Asp Val Phe Trp Thr His Glu Gln Ile  
 50 55 60  
 Glu Lys Leu Ile Lys Ile Phe Pro Glu Gly Gln Ile Val Thr Val Val  
 65 70 75 80  
 Asp Glu Lys Ile Val Gly Cys Ala Leu Ser Ile Ile Val Glu Tyr Asp  
 85 90 95  
 Lys Val Lys Asn Asp His Thr Tyr Ala Gln Val Thr Gly Lys Glu Thr  
 100 105 110  
 Phe Asn Thr His Ser Pro Gln Gly Asn Ile Leu Tyr Gly Ile Glu Val  
 115 120 125  
 Phe Ile His Pro Glu Tyr Arg Gly Leu Arg Leu Ala Arg Arg Met Tyr  
 130 135 140  
 Glu Tyr Arg Lys Glu Leu Cys Glu Thr Leu Asn Leu Lys Ala Ile Met  
 145 150 155 160  
 Phe Gly Gly Arg Ile Pro Asn Tyr His Lys Tyr Ala Asp Lys Met Arg  
 165 170 175  
 Pro Lys Glu Tyr Ile Asp Arg Val Arg Gln Arg Glu Ile Tyr Asp Pro  
 180 185 190  
 Val Leu Thr Phe Gln Leu Ser Asn Asp Phe His Val Arg Lys Val Met  
 195 200 205  
 Thr Asn Tyr Leu Pro Asn Asp Glu Glu Ser Lys His Tyr Ala Cys Leu  
 210 215 220  
 Leu Gln Trp Asp Asn Ile Tyr Tyr Gln Pro Pro Thr Gln Glu Tyr Leu  
 225 230 235 240  
 Ala Pro Lys Thr Thr Val Arg Val Gly Leu Val Gln Trp Gln Met Arg  
 245 250 255  
 Ser Tyr Lys Thr Leu Asp Asp Leu Phe Glu Gln Val Glu Phe Phe Val  
 260 265 270  
 Asp Ala Val Ser Asp Tyr Lys Ser Asp Phe Val Leu Phe Pro Glu Tyr  
 275 280 285  
 Phe Asn Ala Pro Leu Met Ser Lys Tyr Asn Asp Lys Gly Glu Ser Gln  
 290 295 300  
 Ala Ile Arg Gly Leu Ala Gln Tyr Thr Glu Glu Ile Arg Asp Arg Phe  
 305 310 315 320  
 Ile Asn Leu Ala Ile Ser Tyr Asn Ile Asn Ile Ile Thr Gly Ser Met  
 325 330 335  
 Pro Leu Ile Lys Glu Asp Gly Leu Leu Tyr Asn Ala Gly Phe Leu Cys  
 340 345 350  
 Arg Arg Asp Gly Thr Tyr Glu Met Tyr Glu Lys Leu His Val Thr Pro  
 355 360 365  
 Asp Glu Ile Lys Ser Trp Gly Leu Ser Gly Gly Lys Gln Leu Lys Thr  
 370 375 380  
 Phe Asp Thr Asp Cys Ala Lys Ile Gly Ile Leu Ile Cys Tyr Asp Val  
 385 390 395 400  
 Glu Phe Pro Glu Leu Ser Arg Leu Met Ala Asp Gln Gly Met Gln Ile

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405 410 415  
 Leu Phe Val Pro Phe Leu Thr Asp Thr Gln Asn Ala Tyr Ser Arg Val  
 420 425 430  
 Arg Val Cys Ala Gln Ala Arg Ala Ile Glu Asn Glu Cys Phe Val Val  
 435 440 445  
 Ile Ala Gly Ser Val Gly Asn Leu Pro Arg Val His Asn Met Asp Ile  
 450 455 460  
 Gln Tyr Ala Gln Ser Gly Val Phe Thr Pro Cys Asp Phe Ala Phe Pro  
 465 470 475 480  
 Thr Asp Gly Lys Arg Ala Glu Ala Thr Pro Asn Thr Glu Met Ile Leu  
 485 490 495  
 Val Ser Asp Val Asp Leu Asp Leu Leu Asn Glu Leu His Thr Tyr Gly  
 500 505 510  
 Ser Val Arg Asn Leu Lys Asp Arg Arg Asn Asp Val Tyr Glu Val Arg  
 515 520 525  
 Phe Lys Lys Pro  
 530

<210> 5689  
 <211> 139  
 <212> PRT  
 <213> B.fragilis

<400> 5689  
 Lys Leu Leu Gly Asn Tyr Arg Asp Gln Ile Met Asn Arg Asn Ala Ile  
 1 5 10 15  
 Leu Ser Lys Arg Gln Lys Gln Phe Ile Glu Arg Ile Ala Trp Gly Ala  
 20 25 30  
 Ser Tyr Lys Glu Val Ala Asp Phe Phe His Val Ser Trp Ser Thr Val  
 35 40 45  
 Asp Asn Thr Leu Arg Asn Ala Lys Thr Lys Leu Gly Leu Ser Lys Val  
 50 55 60  
 Thr Glu Leu Gly Ala Trp Trp Phe Cys Thr Asn Tyr Gly Ile Ser Phe  
 65 70 75 80  
 Asp Leu Ser Pro Ile Ala Arg Gln Cys Thr Ala Gly Val Ile Leu Leu  
 85 90 95  
 Leu Phe Ser Leu Gly Glu Val Thr Thr Val Thr Asn Ile Ser Tyr Thr  
 100 105 110  
 Met Gln Arg Val Arg Arg Pro Arg Thr Glu Tyr Arg Ile Arg Arg His  
 115 120 125  
 Glu Thr Ser Ile Tyr Gln Pro Tyr Ile Ile Asn  
 130 135

<210> 5690  
 <211> 430  
 <212> PRT  
 <213> B.fragilis

<400> 5690  
 Val Phe Gln Gly Gly Ile Leu Phe Phe Leu Leu Leu Tyr Arg Cys Asn  
 1 5 10 15  
 Arg Glu Ile Ile Ser Phe Phe Ile Lys Leu Ile Met Asn Asn Trp Lys  
 20 25 30  
 Lys Lys Phe Ile Ile Ile Trp Thr Gly Gln Leu Phe Ser Ile Leu Ser  
 35 40 45  
 Ser Ser Ile Ala Gln Phe Ser Ile Val Leu Trp Ile Ser Leu Lys Thr  
 50 55 60  
 Gly Ser Ala Glu Val Leu Ser Phe Ala Thr Ile Ala Ala Leu Leu Pro  
 65 70 75 80

Gln Ala Leu Leu Gly Pro Phe Ala Gly Val Phe Val Asp Arg Trp Asn  
                     85                    90                    95  
 Arg Lys Trp Thr Met Ile Gly Ala Asp Ser Phe Val Ala Leu Cys Ser  
                     100                    105                    110  
 Gly Val Ile Ala Leu Leu Phe Tyr Leu Asp Ile Ile Glu Leu Trp His  
                     115                    120                    125  
 Ile Tyr Leu Leu Leu Met Leu Arg Ser Val Gly Gly Ala Phe His Thr  
                     130                    135                    140  
 Pro Ala Met Lys Ser Ser Val Pro Leu Leu Ala Pro Glu Lys Glu Leu  
                     145                    150                    155                    160  
 Met Arg Ile Ala Gly Ile Asn Gln Ala Ile Gln Ser Ile Cys Asn Ile  
                     165                    170                    175  
 Gly Gly Pro Ala Leu Gly Ala Ile Leu Leu Leu Ala Phe Asp Met Ser  
                     180                    185                    190  
 Leu Val Met Leu Leu Asp Val Leu Gly Ala Ile Ile Ala Cys Thr Ala  
                     195                    200                    205  
 Leu Leu Phe Val Tyr Ile Pro Asn Pro Lys Gln Glu Asn Thr Ser Ala  
                     210                    215                    220  
 Lys Asn Val Leu Tyr Asp Met Arg Asp Gly Phe Asn Val Ile Met Arg  
                     225                    230                    235                    240  
 Asn Lys Gly Val Ser Trp Val Met Val Thr Glu Val Leu Val Thr Phe  
                     245                    250                    255  
 Phe Val Met Pro Met Val Ala Leu Met Pro Leu Met Thr Leu Lys Asn  
                     260                    265                    270  
 Phe Ser Gly Thr Ala Tyr Gln Val Ser Leu Ile Glu Thr Leu Phe Gly  
                     275                    280                    285  
 Ala Gly Met Leu Ala Gly Gly Ala Leu Leu Gly Val Trp Asn Pro Lys  
                     290                    295                    300  
 Ile Arg Lys Thr Leu Leu Ile Ala Ile Ser Tyr Phe Leu Leu Gly Ala  
                     305                    310                    315                    320  
 Ala Leu Ala Phe Cys Gly Ile Leu Pro Ala Asp Gly Phe Val Leu Phe  
                     325                    330                    335  
 Ala Ala Leu Thr Val Ala Gln Gly Ile Val Val Pro Phe Phe Ser Gly  
                     340                    345                    350  
 Pro Phe Thr Ser Leu Leu Gln Thr Gln Phe Lys Pro Ala Tyr Leu Gly  
                     355                    360                    365  
 Arg Val Phe Ser Leu Phe Asp Ser Val Ser Leu Leu Pro Ser Ile Ile  
                     370                    375                    380  
 Gly Leu Phe Ile Thr Gly Phe Ile Ala Asp Ser Leu Gly Ile Ala Asn  
                     385                    390                    395                    400  
 Ile Phe Ile Cys Cys Gly Ile Ala Ile Val Phe Thr Ser Ile Leu Met  
                     405                    410                    415  
 Met Cys Ile Pro Ala Val Arg Asp Leu Glu Lys Gln Ser Lys  
                     420                    425                    430

&lt;210&gt; 5691

&lt;211&gt; 131

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5691

Glu Tyr Ile Ile Pro Ile Tyr Tyr Pro Ile Lys Ile Arg Leu Leu Phe  
 1                    5                    10                    15  
 Asp Ile His Asn Ile Ile Met Ile Lys Lys Glu Asn Lys Ile Phe Val  
                     20                    25                    30  
 Val Ile Ser Pro Asp Pro Val Glu Arg Glu Gln Leu Ile Ala Arg Leu  
                     35                    40                    45  
 Ala Val Arg Leu Gly Phe Ala Lys Ile Pro Ser Asp Ala Leu Lys Ile  
                     50                    55                    60

Ile	Ser	Lys	Asp	Ile	Tyr	Ser	Phe	Asp	Leu	Ala	Thr	Ala	Tyr	Phe	Val
65					70					75					80
Leu	Cys	Ser	Asn	Tyr	His	Phe	Arg	Gly	Ser	Ile	Val	Thr	Thr	Gln	Arg
				85					90					95	
Leu	Tyr	Glu	Leu	Ala	Ala	Arg	Gly	Ile	Cys	Val	Cys	Val	Gly	Val	Lys
			100					105					110		
Ser	Leu	Pro	Arg	Glu	Tyr	Glu	Leu	Leu	Ser	Gln	Val	Phe	Tyr	Pro	Asn
		115					120					125			
Asp	Leu	Arg													
		130													

&lt;210&gt; 5692

&lt;211&gt; 431

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5692

Thr	Leu	Thr	Ile	Lys	Lys	Ser	Ile	Gln	Met	Ala	Ala	Asn	Lys	Leu	Ile
1				5					10					15	
Asp	Val	Ser	Lys	Leu	Asn	Glu	Ala	Leu	Val	Ile	Tyr	Asp	Gln	Ala	Leu
			20					25					30		
Arg	Ala	Leu	Pro	Phe	Ala	Thr	Leu	Thr	Glu	Val	Ala	Asn	Leu	Leu	Lys
		35					40					45			
Leu	Asn	Val	Met	Asp	Leu	Gln	Gly	Lys	His	Ala	Arg	Ile	Asn	Glu	Arg
	50					55					60				
Arg	Arg	Ala	Gly	Gly	Thr	Gln	Ser	Tyr	Lys	Ile	Gly	Lys	Asn	Phe	Gly
65					70					75					80
Leu	Val	Asp	Lys	Leu	Leu	Gly	Tyr	Glu	Pro	Ser	Val	Ile	Glu	Pro	Lys
				85				90						95	
Asp	Val	Val	Cys	Ile	Thr	Lys	Glu	Asn	Ser	Gln	Lys	Tyr	Asp	Asp	Asn
			100					105					110		
Glu	Leu	Leu	Ile	Ile	Gly	Gly	Thr	Pro	Val	Ser	Asn	Thr	Thr	Lys	Lys
			115				120						125		
His	Pro	Met	Glu	Thr	Lys	Val	Ala	Phe	Thr	Leu	Val	Arg	Ser	His	Leu
	130					135					140				
Glu	Asp	Ile	Val	Tyr	Ser	Leu	Phe	Ser	Ala	Glu	Arg	Asp	Glu	Asp	Ser
145					150					155					160
Asn	Ser	Pro	Gly	Gly	Ala	Phe	Asp	Gly	Ile	Tyr	Thr	Lys	Met	Asp	Met
				165				170						175	
Leu	Ile	Thr	Arg	Gly	Asp	Val	Asn	Ala	Ala	Arg	Gly	Asn	Phe	Ser	Ile
			180					185					190		
Ser	Gly	Glu	Phe	Ala	Ala	Pro	Thr	Ser	Asp	Thr	Asp	Tyr	Thr	Ala	Tyr
		195					200					205			
Glu	Asn	Leu	Val	Glu	Trp	Ile	Gly	Gly	Ala	Asn	Thr	Tyr	Leu	Arg	Ser
	210					215					220				
Ser	Ile	Gly	Gly	Val	Pro	Gln	Leu	Leu	Cys	Ala	Glu	Thr	Val	Leu	Lys
225					230					235					240
Ala	Ala	Arg	Ser	Ala	Leu	Arg	Asn	Lys	Leu	Arg	Met	Gln	Glu	Tyr	Pro
				245					250					255	
Ser	Met	Gln	Arg	Met	Leu	Glu	Leu	Leu	Arg	Glu	Asp	Ala	Met	Cys	Pro
				260				265					270		
Asn	Leu	Ile	Val	Ser	Ser	His	Glu	Ala	Leu	Gly	Gln	Gly	Ser	Arg	Leu
		275					280						285		
Thr	Leu	Gln	Lys	Val	Gly	Asn	Ile	Asp	Val	Ala	Phe	Asn	Thr	Gln	Ala
	290					295					300				
Ala	Ser	Lys	Phe	Cys	Gln	Ile	Arg	Asp	Ile	Tyr	Glu	Asp	Pro	Asn	Glu
305					310					315					320
Trp	Gln	Phe	Trp	Leu	Gln	Ala	Gly	Tyr	Asp	Thr	Arg	Ile	Asn	Asp	Trp
				325					330					335	

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His Glu Lys Val Phe Arg Cys Asn Glu Gln Lys Asn Glu Ser Leu Asp  
                   340                  345                  350  
 Leu Ala Gly Asp Tyr Cys Lys Thr Gly Gly Val Gln Val Ala Ile Thr  
                   355                  360                  365  
 Gly Thr Asp Lys Gly Gln Trp Ser Ile Gln Gly Lys Val Ala Lys Arg  
                   370                  375                  380  
 Gly Asn Gly Gln Cys Ile Ile Gly Leu Pro Pro Gly Lys Tyr Thr Ile  
 385                  390                  395                  400  
 Glu Phe Thr Asp Ala Asp Gly Lys Thr Lys Pro Ala Asn Thr Gln Val  
                   405                  410                  415  
 Thr Val Val Ala Gly Glu Val Ala Thr Ala Thr Gly Ala Tyr Thr  
                   420                  425                  430

<210> 5693  
 <211> 115  
 <212> PRT  
 <213> B.fragilis

<400> 5693  
 Val Leu Tyr Ile Met Glu Gln Leu Phe Glu Ala Ile Leu Ala Ile Ala  
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 Lys Gln Asn Pro Asp Gly Phe Thr Val Asp Leu Thr Thr Leu Lys Lys  
                   20                  25                  30  
 Val Thr Lys Gly Ile Ser Val Ala Tyr Leu Glu Thr Gln Asp Ser Phe  
                   35                  40                  45  
 Gly Glu Glu Gly Leu Lys Arg Val Leu Asn His Ala Glu Met His Glu  
                   50                  55                  60  
 Lys Lys Val Gly Gly Trp Leu Asn Glu Glu Asn Gln Glu Phe Tyr Phe  
 65                  70                  75                  80  
 Asp Ser Val Arg Ile Phe Thr Asn Leu Glu Glu Ala Lys Arg Phe Gly  
                   85                  90                  95  
 Cys Glu Asn Lys Gln Ile Ala Ile Phe Asp Ile Ser His Met Arg Leu  
                   100                  105                  110  
 Ile Lys Leu  
                   115

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 <211> 255  
 <212> PRT  
 <213> B.fragilis

<400> 5694  
 Tyr Leu Tyr Ile Cys Ser Asn Gln Arg Leu Asn Ile Met His Asp Ile  
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 Pro Lys Gln Ile Pro Leu Ala Asn Asn His Ile Ser Val Asp Cys Val  
                   20                  25                  30  
 Val Ile Gly Phe Asp Gly Glu Gln Leu Lys Val Leu Leu Ile Asn Arg  
                   35                  40                  45  
 Ile Gly Glu Glu Asn Gly Lys Val Tyr Arg Asp Met Lys Leu Pro Gly  
                   50                  55                  60  
 Ser Leu Ile Tyr Met Asp Glu Asp Leu Asp Glu Ala Ala Gln Arg Val  
 65                  70                  75                  80  
 Leu Phe Glu Leu Thr Gly Ile Arg Asn Val Asn Leu Met Gln Phe Lys  
                   85                  90                  95  
 Ala Phe Gly Ser Lys Asn Arg Thr Ser Asn Pro Lys Asp Val His Trp  
                   100                  105                  110  
 Leu Glu Arg Ala Met Gln Ser Lys Val Glu Arg Ile Val Thr Ile Ala  
                   115                  120                  125  
 Tyr Leu Ser Met Val Lys Ile Asp Arg Ala Leu Asp Lys Asn Leu Asp

130	135	140
Glu Phe Gln Ala Cys Trp Val Ala Leu Lys Asp Ile Lys Thr Leu Ala		
145	150	155
Phe Asp His Asn Leu Ile Ile Arg Glu Ala Leu Thr Tyr Ile Arg Gln		160
	165	170
Phe Val Glu Phe Asn Pro Ser Met Leu Phe Asp Leu Leu Pro Arg Lys		175
	180	185
Phe Thr Ala Ser Gln Leu Arg Ile Leu Phe Glu Leu Val Tyr Asp Lys		190
	195	200
Ala Val Asp Val Arg Asn Phe His Lys Lys Ile Ala Leu Met Asp Tyr		205
	210	215
Val Val Pro Leu Glu Glu Lys Gln Thr Gly Val Ala His Arg Ala Ala		220
225	230	235
Arg Tyr Tyr Lys Phe Asp Arg Lys Ile Tyr Asn Lys Thr Arg Arg		240
	245	250
		255

&lt;210&gt; 5695

&lt;211&gt; 773

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5695

Lys Pro Tyr Met Lys Lys Gly Ile Leu Tyr Thr Ile Leu Leu Tyr Leu		
1	5	10
Ala Leu Ser Leu Ala Ser Cys Ser Ala Thr Lys Phe Val Pro Asp Gly		15
	20	25
Ser Tyr Leu Leu Asp Glu Val Lys Ile His Thr Asp Asn Lys Glu Ile		30
	35	40
Lys Pro Ser Asp Met Arg Leu Tyr Val Arg Gln Asn Pro Asn Ser Lys		45
	50	55
Trp Phe Ser Thr Ile Lys Thr Gln Leu Tyr Val Tyr Asn Trp Ser Gly		60
65	70	75
Arg Asp Ser Thr Lys Trp Phe Asn Arg Phe Leu Arg Lys Ile Gly Asp		80
	85	90
Ala Pro Val Ile Tyr Asn Glu Ser Asp Ala Ile Arg Ser Gln Glu Glu		95
	100	105
Ile Ala Lys Ala Val Gln Asn Leu Gly Tyr Met Gly Ala Ser Val Lys		110
	115	120
Arg Thr Thr Lys Thr Lys Lys Lys Lys Leu Lys Leu Phe Tyr Glu Ile		125
	130	135
Thr Ser Gly Lys Pro Tyr Ile Val Arg Thr Leu Lys Tyr Asp Ile Ser		140
145	150	155
Asp Lys Lys Ile Ala Glu Tyr Leu Arg Asn Asp Ser Thr Gln Ser Met		160
	165	170
Leu Arg Glu Gly Met Leu Phe Asp Val Asn Val Leu Asp Ala Glu Arg		175
	180	185
Gln Arg Ile Thr Asp Tyr Leu Leu Cys Asn Gly Tyr Tyr Lys Phe Asn		190
	195	200
Lys Asp Tyr Ile Thr Tyr Thr Ala Asp Thr Ala Arg Asn Thr His Gln		205
	210	215
Val Asp Leu Thr Leu His Leu Leu Pro Tyr Lys Thr Tyr Val Gly Asp		220
225	230	235
Thr Pro Lys Glu His Phe Gln Tyr Lys Ile Asn Lys Ile Asn Phe Ile		240
	245	250
Thr Asp Tyr Asp Val Leu Gln Ser Ser Ala Leu Ser Ser Ile Glu Ile		255
	260	265
Asn Asp Ser Leu His Tyr Asn Gly Phe Pro Ile Tyr Tyr Lys Asp Lys		270
	275	280
Leu Tyr Leu Arg Pro Lys Val Leu Val Asp Asn Leu Arg Phe Ala Ser		285



290 295 300  
 Gly Asp Leu Tyr Asp Glu Arg Asn Val Gln Lys Thr Tyr Thr Tyr Phe  
 305 310 315 320  
 Gly Arg Leu Ser Ala Leu Lys Tyr Thr Asn Ile Arg Phe Phe Glu Thr  
 325 330 335  
 Gln Asn Gly Asp Ser Thr Gln Leu Asn Cys Tyr Val Met Leu Thr Lys  
 340 345 350  
 Ser Lys His Lys Ser Ile Ser Phe Glu Leu Glu Gly Thr Asn Ser Ala  
 355 360 365  
 Gly Asp Leu Gly Ala Ala Ala Ser Val Ser Phe Gln His Arg Asn Leu  
 370 375 380  
 Phe Arg Gly Ser Glu Thr Phe Met Val Lys Phe Arg Gly Ala Tyr Glu  
 385 390 395 400  
 Ala Ile Ser Gly Leu Gln Pro Gly Tyr Lys Asn His Asn Tyr Thr Glu  
 405 410 415  
 Tyr Gly Val Glu Thr Ser Ile Asn Phe Pro Asn Phe Leu Phe Pro Phe  
 420 425 430  
 Leu Thr Ser Asp Phe Lys Arg Arg Ile Lys Ala Thr Thr Glu Phe Gly  
 435 440 445  
 Leu Gln Tyr Asn Tyr Gln Leu Arg Pro Glu Phe Ser Arg Thr Ile Ala  
 450 455 460  
 Ser Ala Ser Trp Ser Tyr Lys Trp Ile Gln Lys Gln Lys Ile Gln His  
 465 470 475 480  
 Arg Ile Asp Leu Leu Asp Ile Ser Tyr Leu Tyr Leu Pro Trp Ile Ser  
 485 490 495  
 Ser Gln Phe Gln Glu Asp Tyr Ile Asn Lys Asp Lys Asp Asn Tyr Ile  
 500 505 510  
 Leu Lys Tyr Asn Tyr Glu Asn Arg Leu Ile Val Arg Met Gly Tyr Asn  
 515 520 525  
 Tyr Ser Tyr Asn Ser Ala Gly Gly Thr Leu Val Asn Asn Thr Ile Thr  
 530 535 540  
 Thr Asn Ser Tyr Ser Ile Arg Ala Gly Phe Glu Ser Ala Gly Asn Ile  
 545 550 555 560  
 Leu Tyr Gly Ile Ser Lys Met Ile Asn Met Arg Lys Asn Lys Asp Gly  
 565 570 575  
 Glu Tyr Ala Ile Leu Gly Ile Pro Tyr Ala Gln Tyr Leu Lys Gly Asp  
 580 585 590  
 Phe Asp Phe Ala Lys Asn Ile Ile Ile Asp His Arg Asn Ser Leu Ala  
 595 600 605  
 Phe His Ala Gly Ile Gly Ile Ala Val Pro Tyr Gly Asn Ala Lys Val  
 610 615 620  
 Val Pro Phe Glu Lys Arg Tyr Phe Ser Gly Gly Ala Asn Ser Val Arg  
 625 630 635 640  
 Gly Trp Ser Val Arg Asn Leu Gly Pro Gly Ser Phe Ala Gly Asp Gly  
 645 650 655  
 Asn Phe Met Asn Gln Ser Gly Asp Ile Lys Leu Asp Ala Ser Ile Glu  
 660 665 670  
 Tyr Arg Thr Arg Leu Phe Trp Lys Phe Arg Gly Ala Ala Phe Ile Asp  
 675 680 685  
 Ala Gly Asn Ile Trp Thr Ile Arg Glu Tyr Glu Asn Gln Pro Gly Gly  
 690 695 700  
 Val Phe Glu Phe Asp Lys Phe Tyr Lys Gln Ile Ala Val Ala Tyr Gly  
 705 710 715 720  
 Leu Gly Leu Arg Leu Asp Leu Asp Phe Phe Val Leu Arg Phe Asp Gly  
 725 730 735  
 Gly Met Lys Ala Ile Asn Pro Lys Tyr Lys Lys Ala Lys Glu Arg Tyr  
 740 745 750  
 Pro Ile Ile His Pro Arg Phe Ser Arg Asp Phe Ala Phe His Phe Ala  
 755 760 765

290 295 300  
 Gly Asp Leu Tyr Asp Glu Arg Asn Val Gln Lys Thr Tyr Thr Tyr Phe  
 305 310 315 320  
 Gly Arg Leu Ser Ala Leu Lys Tyr Thr Asn Ile Arg Phe Phe Glu Thr  
 325 330 335  
 Gln Asn Gly Asp Ser Thr Gln Leu Asn Cys Tyr Val Met Leu Thr Lys  
 340 345 350  
 Ser Lys His Lys Ser Ile Ser Phe Glu Leu Glu Gly Thr Asn Ser Ala  
 355 360 365  
 Gly Asp Leu Gly Ala Ala Ala Ser Val Ser Phe Gln His Arg Asn Leu  
 370 375 380  
 Phe Arg Gly Ser Glu Thr Phe Met Val Lys Phe Arg Gly Ala Tyr Glu  
 385 390 395 400  
 Ala Ile Ser Gly Leu Gln Pro Gly Tyr Lys Asn His Asn Tyr Thr Glu  
 405 410 415  
 Tyr Gly Val Glu Thr Ser Ile Asn Phe Pro Asn Phe Leu Phe Pro Phe  
 420 425 430  
 Leu Thr Ser Asp Phe Lys Arg Arg Ile Lys Ala Thr Thr Glu Phe Gly  
 435 440 445  
 Leu Gln Tyr Asn Tyr Gln Leu Arg Pro Glu Phe Ser Arg Thr Ile Ala  
 450 455 460  
 Ser Ala Ser Trp Ser Tyr Lys Trp Ile Gln Lys Gln Lys Ile Gln His  
 465 470 475 480  
 Arg Ile Asp Leu Leu Asp Ile Ser Tyr Leu Tyr Leu Pro Trp Ile Ser  
 485 490 495  
 Ser Gln Phe Gln Glu Asp Tyr Ile Asn Lys Asp Lys Asp Asn Tyr Ile  
 500 505 510  
 Leu Lys Tyr Asn Tyr Glu Asn Arg Leu Ile Val Arg Met Gly Tyr Asn  
 515 520 525  
 Tyr Ser Tyr Asn Ser Ala Gly Gly Thr Leu Val Asn Asn Thr Ile Thr  
 530 535 540  
 Thr Asn Ser Tyr Ser Ile Arg Ala Gly Phe Glu Ser Ala Gly Asn Ile  
 545 550 555 560  
 Leu Tyr Gly Ile Ser Lys Met Ile Asn Met Arg Lys Asn Lys Asp Gly  
 565 570 575  
 Glu Tyr Ala Ile Leu Gly Ile Pro Tyr Ala Gln Tyr Leu Lys Gly Asp  
 580 585 590  
 Phe Asp Phe Ala Lys Asn Ile Ile Ile Asp His Arg Asn Ser Leu Ala  
 595 600 605  
 Phe His Ala Gly Ile Gly Ile Ala Val Pro Tyr Gly Asn Ala Lys Val  
 610 615 620  
 Val Pro Phe Glu Lys Arg Tyr Phe Ser Gly Gly Ala Asn Ser Val Arg  
 625 630 635 640  
 Gly Trp Ser Val Arg Asn Leu Gly Pro Gly Ser Phe Ala Gly Asp Gly  
 645 650 655  
 Asn Phe Met Asn Gln Ser Gly Asp Ile Lys Leu Asp Ala Ser Ile Glu  
 660 665 670  
 Tyr Arg Thr Arg Leu Phe Trp Lys Phe Arg Gly Ala Ala Phe Ile Asp  
 675 680 685  
 Ala Gly Asn Ile Trp Thr Ile Arg Glu Tyr Glu Asn Gln Pro Gly Gly  
 690 695 700  
 Val Phe Glu Phe Asp Lys Phe Tyr Lys Gln Ile Ala Val Ala Tyr Gly  
 705 710 715 720  
 Leu Gly Leu Arg Leu Asp Leu Asp Phe Phe Val Leu Arg Phe Asp Gly  
 725 730 735  
 Gly Met Lys Ala Ile Asn Pro Lys Tyr Lys Lys Ala Lys Glu Arg Tyr  
 740 745 750  
 Pro Ile Ile His Pro Arg Phe Ser Arg Asp Phe Ala Phe His Phe Ala  
 755 760 765

Val Gly Tyr Pro Phe  
770

<210> 5696  
<211> 88  
<212> PRT  
<213> B.fragilis

<400> 5696  
His Tyr Arg Ile Met Pro Ser Asp Arg Ile His Gln Ser Lys Val Trp  
1 5 10 15  
Glu Leu Met Glu Gln Arg Lys Glu Gly Lys Pro Ile Glu Phe Ser Ile  
20 25 30  
Glu Phe Cys Lys Lys Ser Thr Gly Glu Leu Ile Thr Tyr Glu Arg Ala  
35 40 45  
Val Leu Ser Ser Phe His Ser Ser Gly Ser Thr Val Asn Ile Leu Gln  
50 55 60  
Ile Gly Glu Tyr Ala Pro Arg Lys Ile Arg Arg Cys Leu Ile Thr Arg  
65 70 75 80  
Phe Asn Asn Ile Lys Val Tyr Phe  
85

<210> 5697  
<211> 509  
<212> PRT  
<213> B.fragilis

<400> 5697  
Tyr Leu Leu Ile Ile Ser Pro Tyr Phe Thr Val Cys Arg Leu Leu Leu  
1 5 10 15  
Pro Ala Asp Arg Asn Ser Lys Lys Ala Asn Ala Met Asn His Thr Asn  
20 25 30  
Glu Gly Ser Lys Leu Tyr Leu Tyr Ser Ile Thr Ser Val Ala Ile Leu  
35 40 45  
Gly Gly Leu Leu Phe Gly Tyr Asp Thr Ala Val Ile Ser Gly Ala Glu  
50 55 60  
Lys Gly Leu Glu Ala Phe Phe Leu Thr Ala Thr Asp Phe Gln Tyr Asp  
65 70 75 80  
Lys Val Met His Gly Ile Thr Ser Ser Ser Ala Leu Ile Gly Cys Val  
85 90 95  
Leu Gly Gly Ala Leu Ser Gly Ile Phe Ala Ser Arg Leu Gly Arg Arg  
100 105 110  
Asn Ser Leu Arg Leu Ala Ala Val Leu Phe Phe Leu Ser Ala Leu Gly  
115 120 125  
Ser Tyr Tyr Pro Glu Phe Leu Phe Phe Glu Tyr Gly Lys Ala Asn Met  
130 135 140  
Asn Leu Leu Ile Thr Phe Asn Leu Tyr Arg Ile Leu Gly Gly Ile Gly  
145 150 155 160  
Val Gly Leu Ala Ser Ala Val Cys Pro Met Tyr Ile Ala Glu Ile Ala  
165 170 175  
Pro Ser Asn Ile Arg Gly Thr Leu Val Ser Cys Asn Gln Phe Ala Ile  
180 185 190  
Ile Phe Gly Met Leu Val Val Tyr Phe Val Asn Tyr Leu Ile Leu Gly  
195 200 205  
Asp His Gln Asn Pro Val Ile Leu Lys Asp Ala Ala Gly Thr Leu Ser  
210 215 220  
Val Ser Ser Glu Ser Asp Met Trp Thr Val Thr Glu Gly Trp Arg Tyr  
225 230 235 240  
Met Phe Gly Ser Glu Ala Phe Pro Ala Ala Phe Phe Gly Met Leu Leu

2438 5696 5697 509 PRT B.fragilis

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<210> 5698
<211> 196
<212> PRT
<213> B.fragilis
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Asn	Tyr	Val	Met	Asp	Glu	Glu	Val	Lys	Gly	Phe	Asn	Arg	Tyr	Met	Ser
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Lys	Val	Asp	Phe	Gln	Pro	Val	Thr	Glu	Phe	Ile	Phe	Gln	Asn	Gly	Gln
			20					25					30		
Leu	Thr	Asp	Tyr	Lys	Lys	Gly	Glu	Phe	Phe	Ser	Arg	Gln	Asn	Glu	Ser
		35				40						45			
Cys	Lys	Met	Val	Gly	Tyr	Val	Thr	Glu	Gly	Ser	Phe	Arg	Tyr	Cys	Cys
	50					55					60				
Thr	Asp	Ser	Arg	Gly	Gly	Ser	Lys	Ile	Val	Gly	Tyr	Thr	Phe	Asp	His
65				70						75				80	
Ser	Phe	Val	Gly	Asn	Tyr	Pro	Ala	Phe	Arg	Leu	Gly	Asp	Asn	Ser	Asn
				85					90					95	
Val	Asp	Ile	Gln	Ala	Ile	Cys	Asn	Cys	Ser	Val	Tyr	Val	Ile	Asn	Asn
			100					105					110		
Arg	Gln	Leu	Glu	Glu	Phe	Tyr	Ser	Arg	Asn	Glu	Ala	Asn	Gln	Lys	Leu
		115					120					125			
Gly	Arg	Gln	Ile	Ala	Glu	Ile	Leu	Leu	Trp	Glu	Val	Tyr	Glu	Arg	Met
	130					135					140				
Ile	Ser	Leu	Tyr	Ser	Met	Thr	Pro	Glu	Glu	Arg	Tyr	Thr	Glu	Ile	Leu

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<212> PRT
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<210> 5700
<211> 319
<212> PRT
<213> B.fragilis
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Tyr	Lys	Leu	Ile	Ala	Leu	Leu	Tyr	Val	Tyr	Trp	His	Ile	Phe	Thr	Tyr	
1				5					10						15	
Phe	Ala	Pro	Tyr	Lys	Gly	Thr	Thr	Met	His	Lys	Lys	Leu	Leu	Val	Thr	
			20					25					30			
Ala	Tyr	Phe	Val	Ile	Ala	Ala	Leu	Leu	Gln	Thr	Leu	Ala	Gly	Asn	Phe	
		35					40					45				
Pro	Leu	Ser	Phe	Phe	Ala	Phe	Pro	Leu	Asn	Val	Ile	Val	Ala	Val	Ile	
	50					55					60					
Trp	Ile	Tyr	Ser	Leu	Trp	Arg	Leu	Tyr	Lys	Glu	Gly	Asn	Lys	Leu	Pro	
65					70					75					80	
Leu	Thr	Arg	Phe	Leu	Leu	Ser	Ser	Arg	Thr	Ser	Val	Leu	Ser	Ile	Leu	
				85					90					95		
Leu	Leu	Ile	Gly	Gly	Ser	Leu	Val	Ile	Gly	Leu	Phe	Pro	Gln	Leu	Ser	
			100					105					110			
Glu	Ala	Glu	Ala	Asp	Ser	Met	Pro	Gly	Val	Leu	Ala	Ser	Leu	Gly	Cys	
		115					120					125				
Tyr	Asn	Phe	Met	Thr	Ser	Trp	Ile	Phe	Ile	Ala	Ile	Leu	Phe	Leu	Leu	
	130					135					140					
Leu	Ser	Asn	Leu	Ala	Met	Val	Ile	Ile	His	Ala	Phe	Tyr	His	Cys	Val	
145					150					155					160	
Pro	Ala	Lys	Lys	Arg	Phe	Ile	Leu	Asn	His	Leu	Gly	Leu	Trp	Leu	Ala	
				165					170					175		
Leu	Phe	Ala	Gly	Phe	Phe	Gly	Ser	Ser	Asp	Val	Gln	Thr	Leu	Arg	Ile	
			180					185					190			
Pro	Leu	Tyr	Thr	Gly	Gln	Pro	Gly	Arg	Glu	Ala	Tyr	Ser	Met	Asp	Gly	
		195					200					205				
Lys	Ala	Tyr	Tyr	Leu	Asp	Tyr	Glu	Leu	Glu	Leu	Tyr	Ser	Phe	Asn	Thr	
	210					215					220					

Glu Tyr Tyr Pro Asn Gly Met Pro Ser Arg Phe Ala Ala Asp Val Arg  
 225 230 235 240  
 Ile Gly Asn Arg Arg Thr Thr Leu Glu Val Asn His Pro His Cys Tyr  
 245 250 255  
 Arg Leu Gly Glu Asp Ile Tyr Leu Thr Gly Tyr Asp Thr Arg Asn Met  
 260 265 270  
 Gly Asn Thr Arg Tyr Cys Ile Leu Gln Ile Val Arg Gln Pro Trp Lys  
 275 280 285  
 Tyr Val Met Val Val Gly Ile Leu Met Met Leu Thr Gly Ala Val Leu  
 290 295 300  
 Leu Phe Ile Asn Gly Pro Lys Lys Leu Lys His Asp Asn Leu Gly  
 305 310 315

&lt;210&gt; 5701

&lt;211&gt; 119

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5701

Phe Lys Ser Ile Lys Glu Met Asn Lys Ser Tyr Phe Glu Thr Arg Lys  
 1 5 10 15  
 Thr Glu Ile Gln Ser Glu Ile Asp Ser Trp Lys Gln Gly Leu Arg Asp  
 20 25 30  
 Leu Glu Asp Glu Tyr Ile Ser Ser Asn Gln Lys Phe Pro Ile Gly Ser  
 35 40 45  
 Lys Val Cys Ile Thr Thr Pro Ala His Glu Gly Trp Ala Leu Ser Thr  
 50 55 60  
 Arg Glu Lys Ile Thr Phe Pro Glu Arg Lys Arg Tyr Ser Tyr Val Thr  
 65 70 75 80  
 Gly Tyr Glu Ile Cys His Asn Glu Val Val Pro Ile Leu Met Lys Ala  
 85 90 95  
 Lys Lys Asp Gly Thr Ile Ser Lys Ile Arg Asp Tyr Ile Thr Leu Glu  
 100 105 110  
 Arg Val Ile Val Glu Leu Ala  
 115

&lt;210&gt; 5702

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5702

Phe Pro Pro Ile Leu Tyr Val Ile Pro Leu Asn Val Ser Asn Met Glu  
 1 5 10 15  
 Lys Val Leu Gln Cys Val Arg Leu Pro Gln Asn Gly Lys Gly Thr Ile  
 20 25 30  
 Gly Phe Asn Leu Lys Gly Glu Tyr Leu Lys Lys Tyr Gly Phe Gln Leu  
 35 40 45  
 Gly Asp Lys Val Lys Val Glu Ile Ser Lys Asn Lys Ile Val Leu Phe  
 50 55 60  
 Lys Thr Gly Asn Val Leu Glu  
 65 70

&lt;210&gt; 5703

&lt;211&gt; 1149

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5703

Tyr 1	Ser	Lys	Ile	Val 5	Asn	Ile	Ala	Met 10	Ser	Lys	Lys	Phe	Ala	Glu 15	Tyr
Ser	Gln	Phe	Asp 20	Leu	Ser	Lys	Val	Asn 25	Lys	Asp	Val	Leu	Lys 30	Lys	Trp
Asp	Glu	Asn 35	Gln	Val	Phe	Ala	Lys 40	Ser	Met	Thr	Glu	Arg 45	Glu	Gly	Cys
Pro	Ser 50	Phe	Val	Phe	Phe	Glu	Gly 55	Pro	Pro	Ser	Ala	Asn 60	Gly	Met	Pro
Gly 65	Ile	His	His	Val 70	Met	Ala	Arg	Ser	Ile	Lys 75	Asp	Ile	Phe	Cys	Arg 80
Tyr	Lys	Thr	Met 85	Lys	Gly	Tyr	Gln	Val 90	Lys	Arg	Lys	Ala	Gly	Trp 95	Asp
Thr	His	Gly 100	Leu	Pro	Val	Glu	Leu 105	Gly	Val	Glu	Lys	Ser	Leu 110	Gly	Ile
Thr	Lys	Glu 115	Asp	Ile	Gly	Lys	Thr 120	Ile	Ser	Val	Ala	Glu 125	Tyr	Asn	Ala
His 130	Cys	Arg	Gln	Asp	Val	Met 135	Lys	Phe	Thr	Lys	Glu 140	Trp	Glu	Asp	Leu
Thr 145	His	Lys	Met	Gly 150	Tyr	Trp	Val	Asp	Met	Lys 155	His	Pro	Tyr	Ile	Thr 160
Tyr	Asp	Asn	Arg 165	Tyr	Ile	Glu	Thr	Leu 170	Trp	Trp	Leu	Leu	Lys	Gln 175	Leu
Tyr	Lys	Lys 180	Gly	Leu	Leu	Tyr	Lys 185	Gly	Tyr	Thr	Ile	Gln 190	Pro	Tyr	Ser
Pro	Ala	Ala 195	Gly	Thr	Gly	Leu	Ser 200	Ser	His	Glu	Leu 205	Asn	Gln	Pro	Gly
Cys 210	Tyr	Arg	Asp	Val	Lys	Asp 215	Thr	Thr	Val	Val	Ala 220	Gln	Phe	Lys	Met
Lys 225	Asn	Pro	Lys	Pro 230	Glu	Met	Ala	Gln	Trp	Gly 235	Thr	Pro	Tyr	Phe	Leu 240
Ala	Trp	Thr	Thr 245	Thr	Pro	Trp	Thr	Leu 250	Pro	Ser	Asn	Thr	Ala	Leu 255	Cys
Val	Gly	Pro	Lys 260	Ile	Asp	Tyr	Val 265	Ala	Val	Gln	Ser	Tyr 270	Asn	Ala	Tyr
Thr	Gly 275	Gln	Pro	Ile	Thr	Val 280	Val	Leu	Ala	Lys	Ala 285	Leu	Leu	Asn	Ala
His 290	Phe	Asn	Pro	Lys	Ala	Ala 295	Glu	Leu	Lys	Leu 300	Glu	Asp	Tyr	Lys	Ala
Gly 305	Asp	Lys	Leu	Val 310	Pro	Phe	Lys	Val	Ile	Ala 315	Glu	Tyr	Lys	Gly	Pro 320
Asp	Leu	Val	Gly 325	Met	Glu	Tyr	Glu	Gln 330	Leu	Ile	Pro	Trp	Val	Asn 335	Pro
Gly	Glu	Gly 340	Ala	Phe	Arg	Val	Ile 345	Leu	Gly	Asp	Tyr	Val 350	Thr	Thr	Glu
Asp	Gly 355	Thr	Gly	Ile	Val	His 360	Ile	Ala	Pro	Thr	Phe 365	Gly	Ala	Asp	Asp
Ala	Gln 370	Val	Ala	Lys	Ala	Ala 375	Gly	Ile	Pro	Pro	Leu 380	Gln	Leu	Val	Asn
Lys 385	Lys	Gly	Glu	Leu 390	Arg	Pro	Met	Val	Asp 395	Leu	Thr	Gly	Lys	Phe	Tyr 400
Thr	Leu	Asp	Glu 405	Leu	Asp	Glu	Asp	Phe 410	Ile	Lys	Gln	Arg	Val	Asn 415	Val
Asp	Leu	Tyr 420	Lys	Glu	Tyr	Ala	Gly 425	Arg	Phe	Val	Lys	Asn 430	Ala	Tyr	Asp
Pro	Asn 435	Leu	Ser	Asp	Gln	Asp 440	Glu	Ser	Leu	Asp 445	Val	Ser	Ile	Cys	Met
Met 450	Met	Lys	Val	Asn 455	Asn	Gln	Ala	Phe	Lys	Ile 460	Glu	Lys	His	Val	His
Asn	Tyr	Pro	His	Cys	Trp	Arg	Thr	Asp	Lys	Pro	Val	Leu	Tyr	Tyr	Pro

465		470		475		480
Leu Asp Ser Trp Phe	Ile Arg Ser Thr	Ala Cys Lys Glu	Arg Met Ile			
	485	490	495			
Glu Leu Asn Lys Thr	Ile Asn Trp Lys	Pro Glu Ser Thr	Gly Thr Gly			
	500	505	510			
Arg Phe Gly Lys Trp	Leu Glu Asn Leu	Asn Asp Trp Asn	Leu Ser Arg			
	515	520	525			
Ser Arg Tyr Trp Gly	Thr Pro Leu Pro	Ile Trp Arg Thr	Glu Asp Asn			
	530	535	540			
Ser Asp Glu Lys Cys	Ile Glu Ser Val	Glu Glu Leu Tyr	Asn Glu Ile			
	545	550	555			560
Glu Lys Ser Val Ala	Gly Tyr Met Gln	Ser Asn Pro Tyr	Lys Asp			
	565	570	575			
Lys Gly Phe Val Pro	Gly Glu Tyr Asn	Glu Glu Asn Tyr	Asn Lys Ile			
	580	585	590			
Asp Leu His Arg Pro	Tyr Val Asp Asp	Ile Ile Leu Val	Ser Lys Asp			
	595	600	605			
Gly Lys Pro Met Lys	Arg Glu Ala Asp	Leu Ile Asp Val	Trp Phe Asp			
	610	615	620			
Ser Gly Ala Met Pro	Tyr Ala Gln Ile	His Tyr Pro Phe	Glu Asn Lys			
	625	630	635			640
Glu Leu Leu Asp Ser	His Gln Val Tyr	Pro Ala Asp Phe	Ile Ala Glu			
	645	650	655			
Gly Val Asp Gln Thr	Arg Gly Trp Phe	Phe Thr Leu His	Ala Ile Ala			
	660	665	670			
Thr Met Val Phe Asp	Ser Val Ser Tyr	Lys Ala Val Ile	Ser Asn Gly			
	675	680	685			
Leu Val Leu Asp Lys	Asn Gly Asn Lys	Met Ser Lys Arg	Leu Gly Asn			
	690	695	700			
Ala Val Asp Pro Phe	Ser Thr Ile Glu	Gln Tyr Gly Ser	Asp Pro Leu			
	705	710	715			720
Arg Trp Tyr Met Ile	Thr Asn Ser Ser	Pro Trp Asp Asn	Leu Lys Phe			
	725	730	735			
Asp Val Asp Gly Ile	Glu Glu Val Arg	Arg Lys Phe Phe	Gly Thr Leu			
	740	745	750			
Tyr Asn Thr Tyr Ser	Phe Phe Ala Leu	Tyr Ala Asn Val	Asp Gly Phe			
	755	760	765			
Glu Tyr Lys Glu Ala	Asp Leu Pro Met	Asn Glu Arg Pro	Glu Ile Asp			
	770	775	780			
Arg Trp Ile Leu Ser	Val Leu Asn Thr	Leu Val Lys Glu	Val Asp Thr			
	785	790	795			800
Cys Tyr Asn Glu Tyr	Glu Pro Thr Lys	Ala Gly Arg Leu	Ile Ser Asp			
	805	810	815			
Phe Val Asn Asp Asn	Leu Ser Asn Trp	Tyr Val Arg Leu	Asn Arg Lys			
	820	825	830			
Arg Phe Trp Gly Gly	Gly Phe Thr Gln	Asp Lys Leu Ser	Ala Tyr Gln			
	835	840	845			
Thr Leu Tyr Thr Cys	Leu Glu Thr Val	Ala Lys Leu Met	Ala Pro Ile			
	850	855	860			
Ala Pro Phe Tyr Ala	Asp Arg Leu Tyr	Ser Asp Leu Ile	Gly Val Thr			
	865	870	875			880
Gly Arg Asp Asn Val	Val Ser Val His	Leu Ala Lys Phe	Pro Glu Tyr			
	885	890	895			
Asn Glu Lys Met Val	Asp Lys Glu Leu	Glu Ala Gln Met	Gln Met Ala			
	900	905	910			
Gln Asp Val Thr Ser	Met Val Leu Ala	Leu Arg Arg Lys	Val Asn Ile			
	915	920	925			
Lys Val Arg Gln Pro	Leu Gln Cys Ile	Met Ile Pro Val	Val Asp Glu			
	930	935	940			

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Val Gln Lys Ala His Ile Glu Ala Val Lys Val Leu Ile Met Ser Glu  
 945 950 955 960  
 Val Asn Val Lys Glu Ile Lys Phe Val Asp Gly Ala Ala Gly Val Leu  
 965 970 975  
 Val Lys Lys Val Lys Cys Asp Phe Lys Lys Leu Gly Pro Lys Phe Gly  
 980 985 990  
 Lys Gln Met Lys Ala Val Ala Ala Val Ala Glu Met Ser Gln Glu  
 995 1000 1005  
 Ala Ile Ala Glu Leu Glu Lys Asn Gly Lys Tyr Thr Phe Asp Leu Gly  
 1010 1015 1020  
 Gly Ala Glu Ala Val Ile Glu Ser Ala Asp Val Glu Ile Phe Ser Glu  
 1025 1030 1035 1040  
 Asp Ile Pro Gly Trp Leu Val Ala Asn Glu Gly Lys Leu Thr Val Ala  
 1045 1050 1055  
 Leu Glu Val Thr Val Thr Asp Glu Leu Arg Arg Glu Gly Ile Ala Arg  
 1060 1065 1070  
 Glu Leu Val Asn Arg Ile Gln Asn Ile Arg Lys Ser Ser Gly Phe Glu  
 1075 1080 1085  
 Ile Thr Asp Lys Ile Lys Leu Thr Leu Ser Lys Asn Pro Gln Thr Asp  
 1090 1095 1100  
 Asp Ala Val Asn Glu Tyr Asn Ser Tyr Ile Cys Asn Gln Val Leu Gly  
 1105 1110 1115 1120  
 Thr Ser Leu Thr Leu Ala Asp Glu Val Lys Asp Gly Thr Glu Leu Asn  
 1125 1130 1135  
 Phe Asp Asp Phe Ser Leu Phe Val Asn Val Val Lys Glu  
 1140 1145

&lt;210&gt; 5704

&lt;211&gt; 181

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5704

Arg Gly Lys Ile Ser Pro Leu Ser Val Gly Arg Pro Arg Thr Ala Leu  
 1 5 10 15  
 Gly Lys Ser Phe Ala Ser Asn Phe Phe Phe Ser Leu Ile Cys Cys Pro  
 20 25 30  
 Pro Pro Gln Lys Ser Ser His Met Arg Tyr Arg Ser Gly Thr Leu Cys  
 35 40 45  
 Arg Phe Ser Val Leu Tyr Val Ser Ala Cys Thr Gln Tyr Ile Cys Asn  
 50 55 60  
 Lys Lys Ala Met Asn Glu Ile Leu Asn Tyr Ile Met Val Phe Leu Phe  
 65 70 75 80  
 Gly Gly Gly Leu Val Gly Thr Ala Thr Ala Phe Val Thr Ile Lys Tyr  
 85 90 95  
 Thr Lys Lys Arg Ala Glu Ala Asp Ala Met Lys Ala Met Gln Asp Val  
 100 105 110  
 Tyr Gln Glu Met Ile Thr Asp Gln Arg Ser Tyr Ile Asn Ser Leu Lys  
 115 120 125  
 Gln Asp Lys Glu Asp Ser Glu Ala Arg Trp Glu Asn Lys Val Glu Thr  
 130 135 140  
 Leu Ser Lys Arg Ile Glu Thr Met Asp Leu Lys Ile Asn Glu Asn Asn  
 145 150 155 160  
 Arg Leu Ile Thr Glu Leu Lys Thr Met Lys Cys Thr Asp Leu Ile Cys  
 165 170 175  
 Gln Asn Arg Lys Gln  
 180

&lt;210&gt; 5705



[illegible]

Ile	Leu	Gly	Ile	Phe	Pro	Tyr	Phe	Cys	Arg	Ile	Leu	Asn	Glu	His	Ser
1				5					10					15	
Ala	Met	Gln	Pro	Ser	Lys	Thr	Glu	Leu	Ile	Leu	Ile	Arg	Ile	Thr	Gly
			20					25					30		
Glu	Asp	Arg	Pro	Gly	Leu	Thr	Ala	Ser	Val	Thr	Glu	Ile	Leu	Ala	Lys
		35					40					45			
Tyr	Asp	Ala	Thr	Ile	Leu	Asp	Ile	Gly	Gln	Ala	Asp	Ile	His	Asn	Thr
	50					55					60				
Leu	Ser	Leu	Gly	Ile	Leu	Cys	Met	Thr	Glu	Glu	Gln	Leu	Ser	Gly	Phe
65					70					75					80
Met	Met	Lys	Glu	Leu	Leu	Phe	Lys	Ala	Ser	Ser	Leu	Gly	Val	Thr	Ile
				85					90					95	
Arg	Phe	Tyr	Pro	Ile	Thr	Glu	Glu	Glu	Tyr	Glu	Ser	Trp	Val	Asn	Met
			100					105					110		
Gln	Gly	Lys	Asn	Arg	Tyr	Ile	Leu	Thr	Leu	Leu	Gly	Arg	Lys	Leu	Thr
		115					120					125			
Ala	Arg	Gln	Ile	Ala	Ala	Val	Thr	Arg	Ile	Leu	Ala	Glu	Gln	Asp	Met
	130					135					140				
Asn	Ile	Asp	Ala	Ile	Lys	Arg	Leu	Thr	Gly	Arg	Ile	Pro	Leu	Asp	Glu
145					150					155					160
Arg	Lys	Met	His	Thr	Arg	Ala	Cys	Ile	Glu	Phe	Ser	Val	Arg	Gly	Thr
				165					170					175	
Pro	Arg	Asp	Lys	Glu	Ala	Met	Gln	Gly	Gln	Leu	Met	Lys	Leu	Ala	Ser
			180					185					190		
Glu	Leu	Glu	Met	Asp	Phe	Ser	Phe	Gln	Leu	Asp	Asn	Met	Tyr	Arg	Arg
		195					200					205			
Met	Arg	Arg	Leu	Ile	Cys	Phe	Asp	Met	Asp	Ser	Thr	Leu	Ile	Glu	Thr
	210					215					220				
Glu	Val	Ile	Asp	Glu	Leu	Ala	Ile	Arg	Ala	Gly	Val	Gly	Ala	Glu	Val
225					230					235					240
Lys	Ala	Ile	Thr	Glu	Arg	Ala	Met	Arg	Gly	Glu	Ile	Asp	Phe	Thr	Glu
				245					250					255	
Ser	Phe	Arg	Glu	Arg	Val	Ala	Leu	Leu	Lys	Gly	Leu	Asp	Glu	Ser	Val
			260					265					270		
Met	Gln	Glu	Ile	Ala	Glu	Ser	Leu	Pro	Ile	Thr	Glu	Gly	Val	Asp	Arg
		275					280					285			
Leu	Met	Tyr	Val	Leu	Lys	Lys	Tyr	Gly	Tyr	Lys	Ile	Ala	Ile	Leu	Ser
	290					295					300				
Gly	Gly	Phe	Thr	Tyr	Phe	Gly	Gln	Tyr	Leu	Gln	Lys	Lys	Tyr	Gly	Val
305					310					315					320
Asp	Tyr	Val	Tyr	Ala	Asn	Glu	Leu	Glu	Ile	Val	Asp	Gly	Lys	Leu	Thr
				325					330					335	
Gly	Arg	Tyr	Leu	Gly	Asp	Val	Val	Asp							

<210> 5706  
 <211> 78  
 <212> PRT  
 <213> B.fragilis

<400> 5706  
 Met Asn His Phe Ser Leu Ile Thr Glu Lys Pro Val His Lys Asn Cys  
 1 5 10 15  
 Thr Gly Phe Phe Lys Gly Asn Arg Ile Phe Ser Arg Leu Pro Ser Gly  
 20 25 30  
 Met Ala Thr His Lys Gly Tyr Thr Ala Pro Ser Ile Tyr Gln Leu Cys  
 35 40 45  
 Asn Ile Tyr Asn Lys Thr Glu Leu Glu Val Leu Cys Ser Ala Ser Ala  
 50 55 60  
 His Val Leu Thr Val Tyr Phe His Ile Tyr Leu Ile Ile Gln  
 65 70 75

<210> 5707  
 <211> 353  
 <212> PRT  
 <213> B.fragilis

<400> 5707  
 Asn Leu Tyr Val Met Asn Tyr Gly Ile Ser Val Leu Phe Arg Ala Ile  
 1 5 10 15  
 Pro Leu Ala Met Ala Leu Phe Cys Phe Gly Tyr Gly Ala Phe Ile Ser  
 20 25 30  
 Ala Tyr Gly Asp Asp Ser Asn Arg Leu Val Ala Gly Pro Val Val Phe  
 35 40 45  
 Ser Leu Gly Met Ile Cys Ile Ala Leu Phe Ala Thr Ala Ala Thr Ile  
 50 55 60  
 Ile Arg Gln Ile Ile His Thr Tyr Gly Arg Gly Ser Leu Tyr Ala Leu  
 65 70 75 80  
 Pro Ile Ile Gly Tyr Leu Ala Ala Val Val Thr Ile Ile Gly Gly Ile  
 85 90 95  
 Cys Met Phe Thr Arg Ser Thr Ser Thr Ser Ser Phe Val Ala Gly His  
 100 105 110  
 Val Val Ala Gly Val Gly Leu Ile Thr Thr Cys Ile Ala Thr Ala Ala  
 115 120 125  
 Thr Ser Ser Thr Arg Phe Ser Leu Ile Pro Ala Asn Ser Lys Met Ile  
 130 135 140  
 Gly Asn Gly Ile Pro Glu Gly Ala Phe Thr Lys Gly Gln Glu Arg Ile  
 145 150 155 160  
 Leu Lys Thr Ile Ala Ile Thr Ile Ser Leu Ile Ala Trp Ile Trp Ala  
 165 170 175  
 Phe Val Leu Leu Ala Lys Ser Asp Val His Pro Ala Tyr Phe Val Ala  
 180 185 190  
 Gly His Val Met Val Gly Leu Ala Cys Ile Cys Thr Ser Leu Ile Ala  
 195 200 205  
 Leu Val Ala Thr Ile Ala Arg Gln Ile Arg Asn Val Tyr Thr Asp Arg  
 210 215 220  
 Glu Arg Lys Arg Trp Pro Lys Leu Val Leu Leu Met Gly Thr Val Ser  
 225 230 235 240  
 Leu Leu Trp Gly Leu Phe Val Ile Phe Ser Asp Ser Ser Thr Thr Asn  
 245 250 255  
 Gly Val Ile Gly Tyr Ile Met Ile Gly Leu Gly Leu Val Cys Tyr Ser  
 260 265 270  
 Ile Ser Ser Lys Val Ile Leu Leu Ala Lys Ile Trp Gly Arg Glu Phe

275                      280                      285  
 Ala Leu Ala Asn Arg Ile Pro Leu Ile Pro Val Leu Thr Ala Leu Ala  
 290                      295                      300  
 Cys Leu Phe Leu Ala Ser Phe Val Phe Glu Leu Gly Thr Thr His Asp  
 305                      310                      315                      320  
 Asp Tyr Phe Ile Pro Ala Arg Val Leu Ala Gly Leu Gly Ala Ile Cys  
 325                      330                      335  
 Phe Thr Leu Phe Ser Ile Val Ser Ile Leu Glu Ser Gly Thr Ser Ser  
 340                      345                      350  
 Lys

&lt;210&gt; 5708

&lt;211&gt; 1643

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5708

Glu Ile Pro Val Tyr Ile Pro Asn Ser Ser His Leu Asn Leu Ile Asp  
 1                      5                      10                      15  
 Met Ala Asp Gln Gln Gln Ile Ile Asp Glu Leu Ile Asp Tyr Ile Asp  
 20                      25                      30  
 Lys Ala Val Leu Lys His Ser Val Ser Asn Arg His Val Ala Glu Val  
 35                      40                      45  
 Leu Tyr Trp Leu Asn Glu Gly Leu Lys Lys Val Ser Thr Asp Gly Leu  
 50                      55                      60  
 Lys Asp Ile Phe Ile Ser Lys Lys Gln Ile Asp Glu Thr Asn Phe Leu  
 65                      70                      75                      80  
 Leu Arg Leu Leu Gly Gly Val Glu Phe Ser Ser Gly Asp Asp Pro Tyr  
 85                      90                      95  
 Arg Ile Thr Gln Lys Gly Glu Ala Phe Leu Lys Lys Leu Thr Leu Asn  
 100                      105                      110  
 Gly Gly Leu Ile Glu Tyr Asp Pro Thr Glu Arg Val Trp Lys Leu Asn  
 115                      120                      125  
 Gly Asn Met Leu Ile Ser Gly Asn Ile Thr Phe Gly Trp Asp Asn Gly  
 130                      135                      140  
 Thr Tyr Thr Ala Pro Thr Leu Leu Asp Leu Leu Pro Tyr Asp Pro Thr  
 145                      150                      155                      160  
 Thr Leu Ser Lys Glu Gly Gly Arg Leu Ser Val Ile Asn Ala Gly Ser  
 165                      170                      175  
 Asp Phe Asp Glu Leu Ala Met Trp Gly Val Leu Ser Lys Glu Gly Val  
 180                      185                      190  
 Gln Gln Ile Asp Lys Ser His Leu Ser Gly Ala Leu Ala Gly Tyr Ala  
 195                      200                      205  
 Thr Glu Lys Phe Val Thr Asp Lys Gly Tyr Ile Thr Ser Ser Ala Leu  
 210                      215                      220  
 Thr Gly Tyr Ala Thr Glu Thr Phe Val Arg Glu Asn Phe Val Thr Leu  
 225                      230                      235                      240  
 Ala Gly Ala Gln Glu Ile Thr Gly Glu Lys Asp Phe Thr Gly Gly Leu  
 245                      250                      255  
 Lys Val Asn Gly Gly Leu Leu Asp Tyr Asp Pro Thr Glu Arg Val Trp  
 260                      265                      270  
 Lys Leu Asn Gly Asn Met Leu Ile Ser Gly Asn Ile Thr Phe Gly Trp  
 275                      280                      285  
 Asp Asn Gly Thr Tyr Thr Ala Pro Thr Leu Leu Asp Leu Leu Pro Tyr  
 290                      295                      300  
 Asp Pro Thr Thr Leu Ser Lys Glu Gly Gly Arg Leu Ser Val Ile Gly  
 305                      310                      315                      320  
 Ser Ala Gly Ser Ser Phe Asp Glu Ser Ser Met Trp Thr Ala Leu Leu

				325											335
Lys	Ser	Gly	Ser	Gln	Gln	Ile	Asp	Lys	Ser	His	Leu	Asp	Thr	Ala	Leu
			340					345					350		
Ala	Gly	Tyr	Ala	Thr	Glu	Asn	Phe	Val	His	Thr	Asn	Leu	Asn	Ala	Leu
		355					360					365			
Lys	Gly	Thr	Gly	Leu	Pro	Thr	Thr	Glu	Gly	Tyr	Arg	Asn	Val	Thr	Glu
	370					375					380				
Ile	Ala	Asn	Thr	Leu	Leu	Thr	Phe	Leu	Thr	Gly	Ser	Asp	Thr	Asp	Ser
385					390					395					400
Thr	Ile	Asn	Lys	Trp	Lys	Glu	Leu	Glu	Ala	Phe	Leu	Ala	Gly	Phe	Ser
			405						410					415	
Glu	Thr	Asp	Thr	Leu	Ala	Thr	Ala	Leu	Ser	Val	Lys	Ala	Asp	Lys	Thr
			420					425					430		
Arg	Ser	Ile	Ile	Thr	Gly	Thr	Gly	Leu	Ser	Gly	Gly	Gly	Asp	Leu	Ser
		435					440					445			
Ala	Asp	Arg	Thr	Leu	Ser	Leu	Ser	Pro	Ser	Gly	Ile	Lys	Ala	Gly	Thr
	450					455					460				
Tyr	Thr	Lys	Leu	Thr	Val	Asp	Ala	Tyr	Gly	Arg	Ala	Thr	Ser	Ala	Ser
465					470					475					480
Gly	Leu	Ile	Ala	Ser	Asp	Ile	Pro	Thr	Leu	Glu	Ile	Ser	Lys	Ile	Asn
				485					490					495	
Gly	Leu	Gln	Asp	Arg	Leu	Asn	Thr	Phe	Val	Thr	Leu	Ala	Gly	Ala	Gln
			500					505					510		
Glu	Ile	Thr	Gly	Glu	Lys	Asn	Phe	Thr	Gly	Gly	Leu	Lys	Val	Asn	Gly
		515					520					525			
Gly	Leu	Leu	Asp	Tyr	Asp	Pro	Thr	His	Lys	Val	Trp	Lys	Leu	Asp	Gly
	530					535					540				
Asn	Leu	Leu	Ile	Thr	Gly	Ser	Thr	Thr	Trp	Asn	Ala	Val	Gly	Asp	Tyr
545					550					555					560
Thr	Ala	Pro	Thr	Leu	Leu	Asp	Leu	Leu	Pro	Tyr	Asp	Pro	Ala	Thr	Leu
			565						570					575	
Ser	Lys	Glu	Gly	Gly	Lys	Leu	Ser	Val	Ile	Gly	Gly	Gly	Gly	Ser	Gly
			580					585					590		
Gly	Gly	Gly	Asn	Ile	Met	Leu	Asn	Gly	Thr	Leu	Tyr	Glu	Ala	Ala	Asn
		595					600					605			
Gly	Val	Ile	Thr	Leu	Pro	Asp	Leu	Tyr	Gln	Lys	Thr	Pro	Asn	Gly	Thr
	610					615					620				
Ala	Ser	Gln	Phe	Leu	Lys	Ala	Asp	Gly	Ser	Leu	Asp	Ser	Asn	Leu	Tyr
625					630					635					640
Ala	Leu	Ala	Tyr	Gly	Gly	Asp	Gln	Asn	Ser	Ile	Gln	Tyr	Ser	Ser	Lys
			645						650					655	
Ser	Asn	Tyr	Leu	Arg	Val	Ile	Asp	Arg	Arg	Asn	Asp	Thr	Ile	Leu	Pro
			660					665					670		
Thr	Ser	Tyr	Asp	Asn	Tyr	Asn	Ile	Ser	Gly	Leu	Phe	His	Met	Ser	Gly

Gly	Ser	Val	Gln	Phe	Asn	Val	Ile	Lys	Arg	Tyr	Asn	Gln	Thr	Asn	Val
				805					810					815	
Asn	Phe	Gly	Val	Leu	Tyr	Asn	Gly	Tyr	Gly	Ile	Asn	Glu	Gly	Glu	Asp
			820					825					830		
Ala	Pro	Lys	Pro	Cys	Thr	Phe	Thr	Tyr	Asn	Gly	Val	Lys	Tyr	Ala	Gly
		835					840					845			
Leu	Lys	Trp	Ala	Ser	Ala	Ala	Ser	Leu	Asp	Ser	Ile	Lys	Thr	Leu	Ile
	850					855					860				
Tyr	Asp	Ile	Ser	Thr	Thr	Gly	Leu	Pro	Phe	Tyr	Val	Lys	Tyr	Phe	Asn
865					870					875					880
Ser	Gln	Ser	Gly	Glu	Val	Phe	Asn	Thr	Glu	Ile	Lys	Asn	Ser	Ile	Val
				885					890					895	
Glu	Leu	Gly	Ser	Asp	Ile	Ser	Gly	Thr	Gly	Leu	Gly	Thr	Ile	Gly	Thr
			900					905					910		
Ile	Arg	Ile	Leu	Asn	Arg	Lys	Ala	Ile	Asp	Ile	Lys	Gly	Glu	Asp	Trp
		915					920					925			
Gly	Tyr	Ile	Gln	Gln	Ala	Ser	Ala	Asp	Arg	Met	Phe	His	Val	Ala	Val
	930					935					940				
Ala	Lys	Ser	Thr	Gln	Ser	Gly	Leu	Gly	Gly	Gly	Leu	Gly	Asn	Tyr	Glu
945					950					955					960
Ile	Arg	Cys	Asn	Gly	Thr	Ser	Glu	Glu	Gly	Ile	Phe	Val	Arg	Tyr	Ser
				965					970					975	
Gly	Ser	Ser	Tyr	Gly	Lys	Leu	Gly	Val	Val	Asn	Arg	Asn	Gly	Gln	Glu
			980					985					990		
Ser	Ser	Ile	Ser	Tyr	Tyr	Asn	Asn	Asn	Thr	Ala	Val	Gly	Ala	Asp	Lys
		995				1000						1005			
Pro	Leu	Trp	Thr	Val	Gly	Ala	Gly	Ile	Arg	Asn	Ala	Tyr	Ser	Phe	Asp
	1010					1015					1020				
Trp	Trp	Phe	Gly	Thr	Asn	Gly	Tyr	Arg	Met	Thr	Leu	Asp	Ser	Asp	Gly
1025					1030					1035					1040
Lys	Leu	Phe	Ile	Asn	Arg	Thr	Asn	Asn	Asn	Glu	Gly	Gly	Leu	Ser	Val
				1045					1050					1055	
Ser	Leu	Ala	Ile	Gly	Asp	Ser	Asp	Thr	Gly	Leu	His	Trp	Gln	Ala	Asp
			1060					1065					1070		
Gly	Ile	Ile	Glu	Phe	Arg	Ser	Asn	Ala	Lys	Gln	Val	Gly	Tyr	Trp	Gly
		1075					1080					1085			
Tyr	Thr	Asn	Gly	Arg	Leu	Phe	Asn	Cys	Tyr	Phe	Arg	Glu	Pro	Ser	Gly
	1090					1095					1100				
Val	Thr	Tyr	Glu	Lys	Ala	Ser	Leu	Met	Ile	Asn	Gly	Asn	Gly	Ser	Thr
1105					1110					1115					1120
Ile	Ser	Pro	Ser	Ile	Gly	Phe	His	Gln	Pro	Gly	Val	Val	Gly	Cys	His
				1125					1130					1135	
Leu	Glu	Leu	Asp	Asn	Gly	Gly	Asn	Phe	Arg	Phe	Lys	Asp	Ser	Ser	Gly
			1140					1145					1150		

1265 1270 1275 1280  
 Asp Thr Leu Trp Ile Asn Gly Tyr Gly Gly Thr Asp Val Pro Asp Met  
 1285 1290 1295  
 Cys Ala Leu His Phe Ser Arg Gly Gly Ala Pro Leu Ile Tyr Ile Ser  
 1300 1305 1310  
 Ser Gln Lys Tyr His Ala Thr Ser Tyr Gly Thr Met Tyr His Ile Trp  
 1315 1320 1325  
 Thr Gly Tyr Asn Ser Asn His Ser Ser Ala Ala Trp Thr Cys Ser Thr  
 1330 1335 1340  
 Leu Asn Ala Asn Gly Arg Ile Ser Thr Thr Ser Asp Ile Tyr Ser Ala  
 1345 1350 1355 1360  
 Gly Trp Val Arg Ala Gly Gly Ser Asn Gly Phe Tyr Cys Glu Ser Tyr  
 1365 1370 1375  
 Gly Gly Gly Ile His Met Thr Asp Ser Thr Trp Val Arg Val Tyr Asn  
 1380 1385 1390  
 Gly Lys Gln Phe Tyr Val Ser Ser Thr Ser Ser Asp Ala Ile His Thr  
 1395 1400 1405  
 Ala Gly Gly Ile Asn Ala Ser Gly Arg Ile Tyr Ala Gly Gly His Leu  
 1410 1415 1420  
 Ser Thr Asn Gly Gly Leu Ala Val Ser Gly Ile Tyr Gly Gly Ser Gly  
 1425 1430 1435 1440  
 Ala Ser Gly Phe Asn Val Tyr Ala Val Phe Gln Gly Arg Ser Asp His  
 1445 1450 1455  
 Gly Gly Ile Glu Val Arg Ala Ser Asp Asn Thr Phe Gly Ile Gly Val  
 1460 1465 1470  
 His Ser Asn Asp His Met Tyr Trp Trp Gly Thr Ser Thr Ser Thr  
 1475 1480 1485  
 Asn Ser Ser Ser Gly Lys Ser Tyr Ile Met Asp Tyr Gly Gly Gly Asn  
 1490 1495 1500  
 Trp Ser Phe Thr Gly Asn His Tyr Val Ser Gly Tyr Ser Thr Trp Gly  
 1505 1510 1515 1520  
 Ser Asp Ser Arg Tyr Lys Thr Tyr Leu Gly Glu Val Thr Leu Gln Leu  
 1525 1530 1535  
 Asp Gln Ile Ala Asp Ser Pro Thr Ile Tyr Tyr Arg Trp Asn Ser Lys  
 1540 1545 1550  
 Lys Arg Asp Arg Asp Gly Leu Leu His Val Gly Gly Tyr Ala Gln Tyr  
 1555 1560 1565  
 Thr Glu Gln Ile Leu Pro Glu Leu Thr His Asp Thr Ser Asn Phe Lys  
 1570 1575 1580  
 Thr Met Asp Tyr Ala Val Cys Ala Tyr Val Tyr Ala Val His Ala Ala  
 1585 1590 1595 1600  
 Arg Phe Leu Arg Asp His Leu Leu Ser Asp Tyr Lys Trp Lys Ser Asp  
 1605 1610 1615  
 Thr Glu Leu Arg Met Tyr Ala Leu Glu Lys Glu Asn Ile Lys Leu Arg  
 1620 1625 1630  
 Asn Arg Ile Glu Gln Leu Glu Arg Arg Ala Ala  
 1635 1640

&lt;210&gt; 5709

&lt;211&gt; 130

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5709

Thr Val Lys Val Met Ala Glu Lys Thr Arg Tyr Ser Asp Ala Glu Leu  
 1 5 10 15  
 Glu Glu Phe Arg Ala Ile Ile Asn Glu Lys Leu Glu Leu Ala Gln Arg  
 20 25 30  
 Asp Tyr Glu Gln Leu Lys Leu Ser Leu Met Gly Leu Asp Gly Asn Asp

	35					40						45					
Thr	Asp	Asp	Thr	Ser	Pro	Thr	Tyr	Lys	Val	Leu	Glu	Glu	Gly	Ala	Asn		
	50					55					60						
Thr	Leu	Ser	Lys	Glu	Glu	Thr	Thr	Arg	Leu	Ala	Gln	Arg	Gln	Leu	Lys		
65					70					75					80		
Phe	Ile	Gln	Gly	Leu	Gln	Ala	Ala	Leu	Val	Arg	Ile	Glu	Asn	Lys	Thr		
				85					90				95				
Tyr	Gly	Ile	Cys	Arg	Glu	Thr	Gly	Lys	Leu	Ile	Pro	Ala	Glu	Arg	Leu		
			100					105					110				
Arg	Ala	Val	Pro	His	Ala	Thr	Leu	Ser	Ile	Glu	Ala	Lys	Asn	Ser	Gly		
		115					120					125					
Lys	Lys																
	130																

&lt;210&gt; 5710

&lt;211&gt; 253

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5710

Met	Ser	Ile	Leu	Ser	Lys	Asn	Arg	Ile	Lys	Tyr	Ile	Arg	Ser	Leu	Glu		
1				5					10					15			
Leu	Lys	Lys	Ile	Arg	Lys	Glu	Glu	Lys	Val	Phe	Leu	Ala	Glu	Gly	Pro		
			20					25					30				
Lys	Leu	Val	Gly	Asp	Val	Leu	Gly	Tyr	Phe	Pro	Cys	Lys	Leu	Leu	Ile		
		35					40					45					
Ala	Thr	Ser	Asp	Trp	Leu	Glu	Glu	His	Pro	Ala	Val	Gln	Ala	Ala	Glu		
						55					60						
Val	Ile	Glu	Val	Thr	Ser	Glu	Glu	Leu	Ser	Arg	Thr	Ser	Leu	Leu	Lys		
65					70					75					80		
Thr	Pro	Gln	Gln	Val	Leu	Ala	Leu	Phe	Glu	Gln	Pro	Glu	Tyr	Glu	Ile		
				85					90					95			
Asp	Met	Glu	Ala	Ile	Arg	Asn	Ser	Leu	Cys	Leu	Ala	Leu	Asp	Asn	Ile		
			100				105						110				
Gln	Asp	Pro	Gly	Asn	Leu	Gly	Thr	Ile	Ile	Arg	Leu	Ala	Asp	Trp	Phe		
		115					120					125					
Gly	Ile	Glu	His	Ile	Phe	Cys	Ser	Pro	Asn	Thr	Val	Asp	Val	Phe	Asn		
	130					135					140						
Pro	Lys	Thr	Ile	Gln	Ala	Thr	Met	Gly	Gly	Ile	Ala	Arg	Val	Lys	Val		
145					150					155					160		
Tyr	Tyr	Thr	Ala	Leu	Pro	Asp	Leu	Met	His	Ser	Leu	Gly	Asn	Val	Pro		
				165					170					175			
Val	Tyr	Gly	Thr	Leu	Leu	Asp	Gly	Glu	Asn	Met	Tyr	Glu	Gln	Pro	Leu		
			180					185					190				
Ser	Lys	Asn	Gly	Ile	Ile	Ile	Met	Gly	Asn	Glu	Gly	Asn	Gly	Ile	Ser		
		195					200					205					
Pro	Glu	Ile	Glu	Lys	Leu	Val	Asn	Arg	Lys	Leu	Tyr	Ile	Pro	Asn	Tyr		
	210					215					220						
Pro	Ala	Glu	Arg	Glu	Thr	Ser	Glu	Ser	Leu	Asn	Val	Ala	Ile	Ala	Thr		
225					230					235					240		
Ala	Ile	Val	Cys	Ala	Glu	Phe	Arg	Arg	Gln	Ala	Ala	Leu					
				245					250								

&lt;210&gt; 5711

&lt;211&gt; 343

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5711

Gln Tyr Val Phe Leu Pro Ser Val Asn Asp Ser Asn Cys Arg Lys Tyr  
 1 5 10 15  
 Arg Lys Pro Gly Ser Leu Tyr Asn Gln Phe Phe Arg Ser Ser His Thr  
 20 25 30  
 Leu Lys Arg Tyr Glu Gly Leu Ile Val Phe Tyr Arg Val Cys His Phe  
 35 40 45  
 Val Ser Ser Leu Phe Leu Ser Tyr Leu Cys His Gln Thr Ile Lys Lys  
 50 55 60  
 Thr Lys Met Lys Thr Tyr Pro Val Val Leu Ser Ile Ala Gly Ser Asp  
 65 70 75 80  
 Cys Ser Gly Gly Ala Gly Ile Gln Ala Asp Ile Lys Thr Ile Ser Ala  
 85 90 95  
 Leu Gly Ala Tyr Ala Ala Ser Val Ile Thr Ala Val Thr Val Gln Asn  
 100 105 110  
 Thr Arg Gly Val Lys Ala Val His Thr Val Pro Ala Glu Ile Val Gln  
 115 120 125  
 Gly Gln Ile Glu Ala Val Met Glu Asp Leu Arg Pro Asp Ala Leu Lys  
 130 135 140  
 Ile Gly Met Val Ser Glu Pro Ala Leu Val Lys Ile Ile Ala Gly Cys  
 145 150 155 160  
 Leu Leu Lys Tyr Pro His Cys Pro Ile Val Tyr Asp Pro Val Met Val  
 165 170 175  
 Ser Thr Ser Gly Arg Lys Leu Met Ala Lys Asp Ala Ile Gln Leu Ile  
 180 185 190  
 Lys Glu Glu Leu Phe Pro Leu Thr Ser Leu Ile Thr Pro Asn Leu Asp  
 195 200 205  
 Glu Thr Glu Val Leu Thr Gly Lys Lys Ile Thr Thr Ala Glu Glu Met  
 210 215 220  
 Lys Glu Ala Ala Arg Gln Leu Ser Glu Glu Tyr His Thr Ala Val Leu  
 225 230 235 240  
 Val Lys Gly Gly His Leu Glu Gly Asn Glu Met Gln Asp Val Leu Phe  
 245 250 255  
 Thr Asp Gly Asn Ala Tyr Ile Tyr Lys Glu Lys Lys Ile Glu Ser Arg  
 260 265 270  
 Asn Leu His Gly Thr Gly Cys Thr Leu Ser Ser Ser Ile Ala Thr Tyr  
 275 280 285  
 Leu Ala Leu Gly Leu Pro Met Asp Gln Ala Val Gly Lys Ala Lys Ser  
 290 295 300  
 Tyr Val Ser Lys Ala Ile Asp Ala Gly Lys Glu Ile Ile Ile Gly His  
 305 310 315 320  
 Gly Asn Gly Pro Leu Cys His Phe Trp Gly Pro Glu Lys Ala Arg Ile  
 325 330 335  
 Trp Asp Asp Asn Lys Val Glu  
 340

&lt;210&gt; 5712

&lt;211&gt; 68

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5712

Asn Ile Ser Phe Asn Pro Arg Leu Val Leu Thr Gly Val Met Gln Val  
 1 5 10 15  
 Arg Phe Val Lys Lys Leu Phe Pro Leu Lys Ile Phe Phe Arg Ile Ile  
 20 25 30  
 Ser Asn Asp Leu Leu Tyr Trp Leu Lys Glu Ile Gly Trp Gly Cys His  
 35 40 45  
 Ile Ile Gly Tyr Leu Lys Gly Val Thr Thr Asp Val Gln Phe Val Lys  
 50 55 60



Pro Phe Arg Leu  
65

<210> 5713  
<211> 66  
<212> PRT  
<213> B.fragilis

<400> 5713  
Ile Leu Thr Ser Lys Lys Met His Cys Phe Lys Lys Ala Met His Phe  
1 5 10 15  
Leu Ser Val Leu Gln Lys Lys Tyr Asn Val Ser Ile Phe Leu Ile Ser  
20 25 30  
Asp Leu Leu Tyr Gln Gln Tyr Lys Lys Ser Asn Tyr Gly Leu Ser Ile  
35 40 45  
Phe Leu Ser Ile Leu Phe Val His Tyr Met Asp Ile Tyr Arg Lys Lys  
50 55 60  
Tyr Thr  
65

<210> 5714  
<211> 413  
<212> PRT  
<213> B.fragilis

<400> 5714  
Met Asn Asn Ser Pro Gln Pro Ala Ala Lys Gly Phe Thr Arg Ala Phe  
1 5 10 15  
Tyr Val Ser Asn Thr Val Glu Leu Phe Glu Arg Met Ala Tyr Tyr Ala  
20 25 30  
Val Phe Ile Val Leu Thr Ile Tyr Leu Ser Thr Ile Leu Gly Phe Asn  
35 40 45  
Asp Phe Glu Ala Ser Met Ile Ser Gly Leu Phe Ser Gly Gly Leu Tyr  
50 55 60  
Leu Leu Pro Ile Phe Thr Gly Ala Tyr Ala Asp Lys Ile Gly Phe Arg  
65 70 75 80  
Lys Ser Met Leu Val Ala Phe Ser Leu Leu Thr Ala Gly Tyr Phe Gly  
85 90 95  
Leu Gly Val Leu Pro Thr Leu Leu Glu Ser Thr Gly Leu Val Ser Tyr  
100 105 110  
Gly Ala Ser Thr His Phe Ser Gly Leu Thr Asp Ser Val Phe Arg Trp  
115 120 125  
Leu Ile Val Pro Val Leu Phe Ile Ile Met Ile Gly Gly Ser Phe Ile  
130 135 140  
Lys Ser Val Ile Ser Ala Ser Val Ala Lys Glu Thr Thr Glu Ala Thr  
145 150 155 160  
Arg Ala Arg Gly Tyr Ser Ile Phe Tyr Met Met Val Asn Ile Gly Ala  
165 170 175  
Phe Thr Gly Lys Thr Val Ile Asp Pro Leu Arg Asn Met Ile Gly Asp  
180 185 190  
Gln Ala Tyr Ile Tyr Ile Asn Tyr Phe Ser Gly Phe Met Thr Leu Ile  
195 200 205  
Ala Leu Leu Ala Val Phe Phe Leu Tyr Lys Ser Thr His Thr Val Gly  
210 215 220  
Glu Gly Lys Ser Met Arg Glu Ile Gly Gln Gly Phe Leu Arg Ile Val  
225 230 235 240  
Thr Asn Trp Arg Leu Leu Ile Leu Ile Leu Ile Ile Thr Gly Phe Trp  
245 250 255  
Met Val Gln His Gln Leu Tyr Ala Thr Met Pro Lys Tyr Val Ile Arg

**THE** **NEW** **YORK** **PUBLIC** **LIBRARY**

<400> 5715																
Lys 1	Lys	Tyr	Ser	Ser 5	Met	Ile	Ser	Asp	Thr 10	Thr	Ile	Arg	Lys	Leu 15	Val	
Asp	Tyr	Ile	Ser 20	Leu	Asn	Ala	Cys	Ser 25	Val	Asn	Ser	Ser	Gly 30	Leu	Tyr	
Asn	Gly	Lys 35	Ser	Gly	Ile	Ser	Leu 40	Ala	Leu	Phe	Glu 45	Thr	Ala	Lys	Cys	
Leu	Gln 50	Asp	Thr	Glu	Ile	Glu 55	Asp	Lys	Ala	Phe	Ser 60	Leu	Phe	Gln	Glu	
Ser 65	Leu	Ile	Arg	Lys	Thr 70	Asn	Asp	Tyr	Gly 75	Phe	Glu 75	Asn	Gly	Met	Ser 80	
Gly	Ile	Gly	Tyr	Val 85	Leu	Ile	Tyr	Leu	Ile 90	Thr	Asn	Lys	Leu 95	Ile	Asp	
Ala	Asp	Phe	Glu 100	Asp	Leu	Phe	Gly	Asp 105	Gln	Arg	Glu	Ala 110	Ile	Ile	Lys	
His	Phe	Glu 115	Asn	Ile	Asp	Lys	Gln 120	Pro	Asp	Lys	Leu 125	Leu	Val	Ser	Tyr	
Lys	Ile 130	Ile	Tyr	Phe	Leu	Phe 135	Val	Leu	Asp	Lys 140	Leu	Gln	Lys	Gln	Asp	
Glu 145	Arg	Ile	Tyr	Ser	Ile 150	Ile	Glu	Lys	Ile 155	Phe	Gln	Gly	Leu	Glu	Leu 160	
Tyr	Leu	Ser	Leu 165	Gln	Phe	Phe	Asp	Trp	Lys 170	Asn	Ile	Tyr	Tyr	Ile	Asn 175	
Ser	Lys	Asp	Tyr 180	Val	Leu	Gln	Met	Tyr 185	Glu	Ala	Tyr	Leu 190	Lys	Leu	Val	
Asp	Phe	Cys 195	Asn	Tyr	Lys	Tyr	Phe 200	Ser	Lys	Ser	Leu 205	Met	Asp	Ser	Tyr	
Val	Thr 210	Leu	Tyr	Ser	Glu	Gly 215	Arg	Ile	Ala	Ser	Ser 220	Leu	Val	Arg	Gly	
Tyr 225	Tyr	Leu	Gly	Ser	Ile 230	Ile	Thr	Lys	Asn 235	Asn	Met	Val	Gly	Phe	Asn 240	
Asp	Val	Ile	Arg	Asp 245	His	Ile	Arg	Tyr	Gly 250	Gln	Lys	Asn	Ile	Asn	Pro 255	
Ala	Ile	Leu	Phe	Leu	Asp	Gln	Lys	Ile	Asn	Leu	Thr	Gly	Ile	Ile	Glu	

260	265	270
Asn Ala Asp Glu Asn Arg Val Lys Ile Gln Arg Ile Glu Met Asp Leu		
275	280	285
Phe Glu Glu Ser Leu Glu Arg Ile Lys Arg Met Val Arg Pro Asn Cys		
290	295	300
Ile His Val Gly Tyr Gln Tyr Gly Leu Ala Arg Tyr Leu Gly Phe Cys		
305	310	315
Ala Asn Lys Lys Phe Pro Leu Leu		
325		

<210> 5716  
 <211> 103  
 <212> PRT  
 <213> B.fragilis

<400> 5716
Met Met Ala Ser Val Ser Arg Ile Leu Ala Arg Asn Leu Phe Pro Ser
1 5 10 15
Pro Ser Pro Leu Leu Ala Pro Phe Thr Ser Pro Ala Ile Ser Thr Ile
20 25 30
Ser Thr Val Val Gly Thr Met Arg Leu Gly Cys Thr Ser Ala Ser
35 40 45
Leu Phe Lys Arg Ser Ser Gly Thr Val Ile Thr Pro Thr Phe Gly Ser
50 55 60
Ile Val Gln Lys Gly Lys Phe Ala Ala Cys Ala Phe Ala Leu Asp Arg
65 70 75 80
Gln Leu Lys Ser Val Asp Leu Pro Thr Phe Gly Ser Pro Thr Ile Pro
85 90 95
His Cys Asn Ala Ile Ile Leu
100

<210> 5717  
 <211> 204  
 <212> PRT  
 <213> B.fragilis

<400> 5717
Arg Val Gly Ser Tyr Cys Gly Ser Ser His Glu Arg Arg Thr Phe Gly
1 5 10 15
Asn Cys Phe Leu Leu Arg Ile Ile Leu Lys Arg Ile Ile Tyr Lys Lys
20 25 30
Asp Leu Asp Met Met Lys Pro Ile Ala Val Asn Gln Leu Ser Asp Asn
35 40 45
Phe Phe Glu Thr Ile Ser Lys Glu Trp Met Leu Val Thr Ala Gly Asn
50 55 60
Lys Asp Ala Phe Asn Thr Met Thr Ala Asn Trp Gly Gly Ile Gly Phe
65 70 75 80
Leu Trp Asn Lys Pro Val Val Tyr Val Phe Ile Arg Pro Glu Arg Tyr
85 90 95
Thr Phe Gly Phe Met Glu Lys Asn Asp Tyr Phe Thr Leu Ser Phe Leu
100 105 110
Gly Glu Glu Asn Lys Ser Ile His Lys Ile Cys Gly Ser Lys Ser Gly
115 120 125
Arg Glu Val Asp Lys Ile Lys Glu Thr Gly Leu Lys Pro Met Ile Thr
130 135 140
Asp Lys Gly Asn Val Leu Phe Glu Gln Gly Arg Leu Ser Leu Glu Cys
145 150 155 160
Arg Lys Leu Tyr Thr Asp Val Leu Arg Lys Glu Asn Phe Leu Asp Pro
165 170 175

[illegible]

<400>	5719															
Lys 1	Glu	Trp	Phe 5	Val	Pro	Ile	Val	Tyr	Met 10	Leu	Asp	Ile	Asn 15	Met	Asp	
Trp	Pro	Val	Ile 20	Leu	Ala	Phe	Ala	Arg 25	Ile	Lys	Asn	Phe 30	Leu	Tyr	Phe	
Asn	Asn	Leu 35	Ile	Thr	Met	Cys	Glu 40	Ile	Ser	Val	Val	Met 45	Pro	Val	Tyr	
Asn	Ala 50	Glu	Met	His	Ile	Lys 55	Asp	Ala	Ile	Glu	Ser 60	Val	Leu	Glu	Gln	
Ser 65	Phe	Val	Asp	Phe 70	Glu	Phe	Ile	Leu	Ile	Asp 75	Asp	Gly	Ser	Thr	Asp 80	
Arg	Thr	Ser	Ser 85	Ile	Ile	Gln	Ser	Tyr	Asn 90	Asp	Lys	Arg	Val	Arg	Leu 95	
Ile	Gln	Asn 100	Ser	His	Asn	Phe	Ile	Glu 105	Ser	Leu	Asn	Leu 110	Gly	Ile	Glu	
Asn	Ser 115	Leu	Gly	Lys	Tyr	Met	Ala 120	Arg	Met	Asp	Gly	Asp 125	Asp	Ile	Met	
His 130	Ile	Asp	Arg	Leu	Lys	Ile 135	Gln	Tyr	Ala	Ile	Met 140	Gln	Glu	Tyr	Pro	
Asp 145	Val	Thr	Val	Cys 150	Gly	Thr	Trp	Met	Asn	Ser 155	Ile	Gly	Thr	Tyr	Ser 160	
Gln	Thr	Asn	Gly 165	Leu	Leu	Ser	Thr	Leu	Ser 170	Gly	Leu	Val	Glu	Gln	Pro 175	
Leu	Leu	Lys 180	Phe	Thr	Lys	Gly	Asn 185	Phe	Leu	Phe	His	Pro	Thr 190	Thr	Met	
Ile	Arg	Met 195	Asp	Phe	Leu	Lys	Lys 200	Asn	Ala	Leu	Lys	Tyr 205	Glu	Asn	Cys	
Pro	Tyr 210	Ala	Glu	Asp	Phe	Lys 215	Phe	Trp	Val	Glu	Ile 220	Ala	Lys	Ser	Gly	
Gly 225	Arg	Phe	Tyr	Ile 230	Asp	Ser	Gln	Pro	Leu	Leu 235	Tyr	Tyr	Arg	Ile	Ser 240	
Asp	Ser	Gln	Val 245	Ser	Ser	Gln	Lys	Ser	Ser 250	Glu	Gln	Arg	Ala	Thr	Thr 255	
Glu	Ser	Ile	Ile	Asn	Glu	Val	Leu	Glu	Tyr	Leu	Met	Glu	Leu	Asn	Lys	

260	265	270
Asn Glu Tyr Pro Glu Leu Ala Ala Ala Tyr Gly Asp Leu Cys Lys Leu		
275	280	285
Tyr Glu Lys Gln Leu Leu Thr Lys Cys Glu Val Leu Thr Leu Phe Gln		
290	295	300
Thr Leu Phe Ser Lys Asn Glu Lys Lys Leu Asn Leu		
305	310	315

<210> 5720  
 <211> 208  
 <212> PRT  
 <213> B.fragilis

<400> 5720
Arg His Ile Thr Asp Lys Arg Asn Tyr Gln Ser Lys Ile Asn Gln Ile
1 5 10 15
Met Thr Lys Ser Ile Lys Gly Thr Gln Thr Glu Lys Asn Leu Leu Thr
20 25 30
Ser Phe Ala Gly Glu Ser Gln Ala Arg Met Arg Tyr Thr Tyr Phe Ala
35 40 45
Ser Val Ala Lys Lys Glu Gly Tyr Glu Gln Ile Ala Ala Ile Phe Thr
50 55 60
Glu Thr Ala Asp Gln Glu Lys Glu His Ala Lys Arg Met Phe Lys Phe
65 70 75 80
Leu Glu Gly Gly Met Val Glu Ile Thr Ala Ser Tyr Pro Ala Gly Val
85 90 95
Ile Gly Asn Thr Leu Gln Asn Leu Gln Ala Ala Ala Ala Gly Glu His
100 105 110
Glu Glu Trp Ser Leu Asp Tyr Pro His Phe Ala Asp Val Ala Glu Gln
115 120 125
Glu Gly Phe Pro Met Ile Ala Ala Met Tyr Arg Asn Ile Ser Ile Ala
130 135 140
Glu Lys Gly His Glu Glu Arg Tyr Leu Ala Phe Val Lys Asn Ile Glu
145 150 155 160
Val Ala Ser Val Phe Ala Lys Glu Gly Glu Val Val Trp Gln Cys Arg
165 170 175
Asn Cys Gly Tyr Ile Glu Val Gly Lys Glu Ala Pro Glu Val Cys Pro
180 185 190
Ala Cys Leu His Pro Gln Ala Tyr Phe Glu Ile Lys Lys Glu Asn Tyr
195 200 205

<210> 5721  
 <211> 682  
 <212> PRT  
 <213> B.fragilis

<400> 5721
Asn Thr Ile Thr Thr Leu Asp Met Asn Glu Ser Ile Ser Ile Leu Ser
1 5 10 15
Ile Phe Leu Leu Val Asn Met Thr Leu Ile Thr Ser Thr Cys His Ala
20 25 30
Gln Asn Arg Ser Asp Tyr Pro Trp Glu Glu Val Met Glu Asn Leu Ser
35 40 45
Ile Ser Asp Glu Glu Gly Asp Ile Arg Asn Trp Glu Asn Glu Leu Glu
50 55 60
Glu Leu Thr Asp Leu Val Asn Asn Pro Val Asn Ile Asn Ser Ala Thr
65 70 75 80
Lys Glu Gln Leu Gln Arg Phe Pro Phe Leu Asn Asp Val Gln Ile Glu
85 90 95

Asn	Leu	Leu	Ala	Tyr	Ile	Tyr	Ile	His	Gly	Ser	Met	Gln	Thr	Val	Tyr
			100					105					110		
Glu	Leu	Gln	Leu	Val	Glu	Glu	Leu	Asp	Arg	Gln	Thr	Ile	Gln	Tyr	Leu
		115					120					125			
Leu	Pro	Phe	Val	Cys	Val	Glu	Pro	Val	Asp	Lys	Lys	Glu	Ser	Val	Thr
		130					135				140				
Leu	Lys	Gln	Ile	Leu	Lys	Tyr	Gly	Lys	His	Glu	Ala	Val	Thr	Arg	Met
145						150				155					160
Asp	Val	Pro	Leu	Tyr	Lys	Arg	Lys	Gly	Tyr	Glu	Lys	Asn	Tyr	Leu	Gly
				165					170						175
Pro	Ala	Val	Tyr	Asn	Ser	Val	Lys	Tyr	Gly	Phe	His	Tyr	Arg	Glu	Lys
				180					185						
Val	Tyr	Ala	Gly	Ile	Val	Ala	Glu	Lys	Asp	Ser	Gly	Glu	Pro	Phe	Gly
		195					200					205			
Ala	Leu	His	Asn	Lys	Gln	Gly	Tyr	Asp	Tyr	Tyr	Ser	Phe	Tyr	Leu	Leu
		210					215				220				
Leu	His	Asp	Ile	Gly	Ile	Leu	Lys	Thr	Gly	Ile	Val	Gly	Asn	Tyr	Arg
225					230					235					240
Leu	Asn	Phe	Gly	Gln	Gly	Leu	Val	Leu	Gly	Gln	Gly	Ser	Met	Phe	Gly
				245						250					255
Lys	Thr	Ala	Tyr	Ser	Ser	Ser	Phe	Thr	Phe	Arg	Ser	Thr	Gly	Ile	Arg
				260					265						
Arg	His	Thr	Ser	Thr	Asp	Glu	Tyr	Asn	Tyr	Phe	Arg	Gly	Ser	Gly	Ile
				275				280					285		
Ala	Leu	Lys	Trp	Lys	Gln	Trp	Thr	Leu	Ser	Val	Phe	Tyr	Ser	His	Arg
		290				295					300				
Ser	Leu	Asp	Gly	Val	Ile	Lys	Gly	Gly	Glu	Ile	Thr	Ser	Ile	Tyr	Lys
305					310					315					320
Thr	Gly	Leu	His	Arg	Ser	Glu	Lys	Glu	Ala	Asp	Lys	Met	Asn	Gln	Leu
				325						330					335
Thr	Met	Gln	Met	Ser	Gly	Gly	Asn	Ile	Ser	Tyr	Thr	Gly	Asn	Ser	Tyr
				340				345					350		
Gln	Leu	Gly	Ile	Thr	Gly	Val	Tyr	Tyr	Cys	Phe	Asn	Arg	Ser	Tyr	Glu
		355					360					365			
Pro	Glu	Leu	Lys	Asp	Tyr	Ser	Lys	Tyr	Asn	Leu	His	Gly	Arg	Ser	Phe
						375					380				
Tyr	Asn	Leu	Gly	Met	Asp	Tyr	Lys	Tyr	Arg	Phe	His	Arg	Phe	Ser	Ile
385					390					395					400
Gln	Gly	Glu	Ala	Ala	Leu	Gly	Ile	Ser	Gly	Met	Ala	Phe	Met	Asn	Gln
				405						410					415
Val	Leu	Tyr	Ser	Pro	Leu	Gln	Asp	Ile	Arg	Leu	Met	Leu	Val	His	Arg
				420				425					430		
Tyr	Tyr	Ser	His	Asp	Tyr	Trp	Ala	Met	Phe	Ala	His	Ser	Phe	Ser	Glu
						440						445			
Gly	Ser	Ser	Val	Gln	Asn	Glu	Asn	Gly							

				565					570					575			
Thr	Gln	Thr	Ala	Gly	Trp	Lys	Leu	Pro	Trp	Leu	Pro	Leu	Thr	Ala	Glu		
			580					585					590				
Leu	Gln	Gly	Ser	Tyr	Phe	His	Thr	Asp	Asp	Tyr	Asp	Ser	Arg	Ile	Tyr		
		595					600				605						
Ile	Tyr	Glu	Lys	Gly	Leu	Leu	Tyr	Ser	Phe	Tyr	Thr	Pro	Ser	Phe	Gln		
	610				615						620						
Gly	Glu	Gly	Ile	Arg	Leu	Ala	Ile	Tyr	Phe	Arg	Tyr	Asp	Met	Asn	Lys		
625				630						635				640			
His	Trp	Thr	Ala	Ile	Ala	Lys	Leu	Gly	Gln	Thr	Thr	Tyr	Phe	Asp	Arg		
			645					650					655				
Asp	Glu	Ile	Gly	Ser	Gly	Asn	Asp	Leu	Ile	Arg	Gly	Asn	Lys	Lys	Thr		
		660					665					670					
Asp	Val	Gln	Met	Gln	Leu	Arg	Leu	Lys	Phe								
		675					680										

<210> 5722  
 <211> 158  
 <212> PRT  
 <213> B.fragilis

Asn	Ser	Thr	Thr	Met	Lys	Lys	Leu	Thr	Arg	Lys	Ser	Leu	Asn	Glu	Leu		
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Ala	Lys	Thr	Met	Pro	Ile	Ile	Glu	Glu	Ser	Leu	Gln	Met	Ser	Tyr	Val		
			20				25					30					
Gly	Gly	Gly	Asn	Gly	Thr	Ser	Ala	Asn	Pro	Tyr	Thr	Gln	Glu	Glu	Tyr		
		35					40				45						
Glu	Ser	Met	Val	Ser	Ser	Gly	Ile	Trp	Asn	Gly	Gly	Tyr	Val	Glu	Asn		
	50					55				60							
Trp	Gly	Tyr	Thr	Phe	Pro	Glu	Met	Ala	Val	Ser	Ser	Tyr	Asp	Pro	Asn		
65				70					75				80				
Asn	Leu	Pro	Lys	Thr	Gly	Val	Asp	Ser	Tyr	Asp	Leu	Met	Tyr	Gln	Gly		
			85				90					95					
Gly	Phe	Ala	Ile	Gly	Tyr	Lys	Ala	Gly	Leu	Ser	Gly	Ser	Thr	Leu	Asp		
		100					105					110					
Asp	Ile	Gly	Ile	Gly	Ala	Trp	Ser	Ala	Leu	Ala	Val	Ile	Ser	Ala	Gly		
	115					120					125						
Ser	Glu	Ile	Gly	Gly	Val	Asn	Ser	Asp	Met	Ile	Trp	Tyr	Ser	Lys	Gly		
	130					135					140						
Leu	Arg	Asp	Gly	Leu	Thr	Lys	Gly	Arg	Gly	Ala	Arg	Gly	Asn				
145					150					155							

<210> 5723  
 <211> 119  
 <212> PRT  
 <213> B.fragilis

Leu	Trp	Arg	Thr	Val	Glu	Asn	Lys	Ser	Thr	Met	Asp	Asp	Ile	Val	Lys		
1				5				10					15				
Val	Leu	Val	Ile	Met	Ala	Ala	Phe	Ala	Leu	Pro	Leu	Ile	Arg	Gln	Ile		
		20					25					30					
Lys	Lys	Ser	Lys	Thr	Glu	Arg	Ser	Ala	Gln	Lys	Pro	Phe	Val	Pro	Ile		
		35					40				45						
Pro	Asp	Thr	Glu	Glu	Pro	Glu	Val	Leu	Lys	Val	Thr	Arg	Lys	Tyr	Gln		
	50					55				60							
Pro	Leu	His	Ser	Gln	Ser	Thr	Ser	Gln	Lys	Val	Glu	Val	Lys	Lys	Asn		
65					70					75				80			

Lys Thr Val Ser Gln Lys Ile Glu Thr Thr Pro Ala Asn Asp Pro Glu  
                     85                    90                    95  
 Phe Thr Ile His Ser Ala Glu Glu Ala Arg Lys Ala Ile Ile Trp Ser  
                     100                    105                    110  
 Glu Ile Leu Asn Arg Lys Tyr  
                     115

<210> 5724  
 <211> 219  
 <212> PRT  
 <213> B.fragilis

<400> 5724  
 Val Asn Ala Ala Arg Lys Thr Ile Asn Ile Asn Leu Ile Leu Tyr Phe  
 1                    5                    10                    15  
 Cys Lys Met Asn Met Arg Leu Thr Ile Gly Leu Leu Met Leu Ser Ile  
                     20                    25                    30  
 Ala Leu Leu Phe Ser Ser Glu Ser Leu Ala Gln Glu Lys Thr Asn Leu  
                     35                    40                    45  
 Gly Gly Tyr Leu Val Pro Met Cys Val Tyr Asn Gly Asp Thr Ile Pro  
                     50                    55                    60  
 Ala Phe Gln Ile Pro Thr Ile His Ile Phe Lys Pro Leu Lys Phe Arg  
 65                    70                    75                    80  
 Asn Arg Lys Glu Gln Met Glu Tyr Tyr Lys Leu Val Arg Asn Val Lys  
                     85                    90                    95  
 Lys Val Tyr Pro Ile Ala Arg Glu Ile Asn Arg Thr Ile Ile Glu Thr  
                     100                    105                    110  
 Tyr Glu Tyr Leu Gln Thr Leu Pro Asn Glu Lys Ala Arg Gln Arg His  
                     115                    120                    125  
 Ile Lys Arg Val Glu Lys Gly Leu Lys Glu Gln Tyr Thr Pro Arg Met  
                     130                    135                    140  
 Lys Lys Leu Ser Phe Ala Gln Gly Lys Leu Leu Ile Lys Leu Ile Asp  
 145                    150                    155                    160  
 Arg Gln Ser His Gln Ser Ser Tyr Glu Leu Val Lys Ala Phe Met Gly  
                     165                    170                    175  
 Pro Phe Lys Ala Gly Phe Tyr Gln Thr Phe Ala Ala Leu Phe Gly Ala  
                     180                    185                    190  
 Ser Leu Lys Lys Gln Tyr Asp Pro Glu Gly Glu Asp Lys Leu Thr Glu  
                     195                    200                    205  
 Arg Val Ile Leu Leu Val Glu Ser Gly Gln Leu  
                     210                    215

<210> 5725  
 <211> 308  
 <212> PRT  
 <213> B.fragilis

<400> 5725  
 His Cys Tyr Leu Ile Pro Thr His Lys Met Ile Ser Lys Pro Thr Lys  
 1                    5                    10                    15  
 Ser Asp Val Met Arg Glu Leu Arg Asp Tyr Ile Phe Ile Thr Leu Gly  
                     20                    25                    30  
 Leu Ile Ser Tyr Ala Leu Gly Trp Thr Ala Phe Leu Ile Pro Tyr Gln  
                     35                    40                    45  
 Ile Thr Thr Gly Gly Thr Thr Gly Ile Gly Ala Ile Ile Tyr Tyr Ala  
                     50                    55                    60  
 Thr Gly Phe Pro Ile Gln Trp Ser Tyr Phe Ile Ile Asn Ala Val Leu  
 65                    70                    75                    80  
 Met Thr Phe Ala Ile Lys Ile Leu Gly Pro Lys Phe Ser Ile Lys Thr



[illegible]

<400> 5726															
Glu	Leu	Ile	Ala	Leu	Ser	Ile	Phe	Asp	Cys	Gln	Glu	Lys	Leu	Val	Phe
1				5					10					15	
Ala	Thr	Gln	Ser	Tyr	Asp	Arg	Ala	Asp	Ser	Arg	Met	Glu	Gly	Ala	Thr
			20					25					30		
Glu	Gln	Asp	Cys	Ala	Lys	Lys	Arg	Thr	Asp	Ala	Asn	Asn	Ile	Lys	Tyr
		35					40					45			
Phe	Ile	Thr	Gly	Val	Phe	Ile	Asn	Phe	Leu	Ser	Ala	Ser	Val	Ser	Pro
	50					55					60				
Leu	Phe	Phe	Pro	Val	Phe	Val	Leu	Phe	Ser	Leu					
65					70					75					

<400> 5727															
Phe	Ile	Asn	Leu	Leu	Thr	Phe	Arg	Gln	Lys	Ser	Asp	Lys	Met	Asn	Arg
1				5					10					15	
Ile	Phe	His	Ala	Arg	Ile	Val	Trp	Tyr	Gln	Tyr	Phe	Leu	Leu	Val	Val
			20					25					30		
Leu	Gly	Val	Asn	Ala	Phe	Gly	Phe	Leu	Trp	Cys	Lys	Asn	Ile	Ile	Leu
		35					40					45			

Ala Thr Leu Met Met Leu Phe Leu Ile Val Val Ile Glu Gln Ile Ile  
 50 55 60  
 His Thr Val Tyr Thr Val Thr Ala Asp Gly Leu Leu Leu Leu Asn His  
 65 70 75 80  
 Gly Arg Phe Ile Arg Lys Lys Thr Ile Pro Ile Ala Glu Ile Thr Ser  
 85 90 95  
 Ile Arg Lys Val His Ser Met Lys Phe Gly Ser Phe Ser Val Thr Asn  
 100 105 110  
 Tyr Leu Leu Ile Glu Tyr Gly Lys Gly Lys Tyr Ala Ser Val Leu Pro  
 115 120 125  
 Val Lys Glu Lys Glu Phe Met Glu Leu Ile Glu Lys Thr Arg Asn Leu  
 130 135 140  
 Ile  
 145

&lt;210&gt; 5728

&lt;211&gt; 211

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5728

Phe Ser Lys Tyr Met Leu Ile Leu Leu Thr Gly Phe Lys Pro Leu Ser  
 1 5 10 15  
 Thr Pro Met Leu Thr Arg Lys Glu Leu Leu Gln His Thr Asn Arg  
 20 25 30  
 Asn Asp Ile Ile Met Arg Lys Leu Lys Ile Thr Glu Leu Asn Arg Ile  
 35 40 45  
 Ser Ile Glu Glu Phe Lys Glu Ala Asp Lys Leu Pro Leu Val Val Val  
 50 55 60  
 Leu Asp Asp Ile Arg Ser Leu His Asn Ile Gly Ser Val Phe Arg Thr  
 65 70 75 80  
 Ala Asp Ala Phe Arg Ile Glu Cys Ile Tyr Leu Cys Gly Ile Thr Ala  
 85 90 95  
 Thr Pro Pro His Pro Glu Met His Lys Thr Ala Leu Gly Ala Glu Phe  
 100 105 110  
 Thr Val Asp Trp Lys Tyr Val Asn Asn Ala Val Glu Thr Val Asp Asn  
 115 120 125  
 Leu Arg Ser Glu Gly Tyr Val Val Tyr Ser Val Glu Gln Ala Glu Gly  
 130 135 140  
 Ser Ile Met Leu Asp Glu Leu Thr Leu Asp Arg Ser Lys Lys Tyr Ala  
 145 150 155 160  
 Val Val Met Gly Asn Glu Val Lys Gly Val Gln Gln Glu Val Ile Asp  
 165 170 175  
 His Ser Asp Gly Cys Ile Glu Ile Pro Gln Tyr Gly Thr Lys His Ser  
 180 185 190  
 Leu Asn Val Ser Val Thr Ala Gly Ile Val Ile Trp Asp Leu Phe Lys  
 195 200 205  
 Lys Leu Lys  
 210

&lt;210&gt; 5729

&lt;211&gt; 448

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5729

Thr Met Lys Tyr Gln Val Ile Ile Ile Gly Gly Gly Pro Ala Gly Tyr  
 1 5 10 15  
 Thr Ala Ala Glu Ala Ala Gly Lys Ala Gly Leu Ser Val Leu Leu Phe

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<210> 5730
<211> 83
<212> PRT
<213> B.fragilis
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&lt;400&gt; 5730

Gly	Gln	Gly	Tyr	Phe	Gln	Gln	Asp	Glu	Pro	Ala	Phe	Ser	Val	Phe	Asp
1				5				10						15	
Pro	Val	Leu	Asp	Tyr	Phe	Asn	Thr	His	Val	Ile	His	Arg	Ser	Gly	Ala
			20					25					30		
Met	His	Ala	Leu	Pro	Asp	Gly	Glu	Tyr	Pro	Phe	Thr	Gly	Lys	Gly	Gln
		35					40					45			
Gly	Leu	Lys	Ile	Ala	Ala	Val	Ser	Gly	His	His	Ile	Arg	Phe	Pro	Asp
	50					55					60				
Gly	Ser	Arg	Arg	Ala	Val	Ile	Gln	Gly	Trp	Glu	Phe	Asn	Arg	Ile	Phe
65					70					75					80
Ser	Ile	Asn													

&lt;210&gt; 5731

&lt;211&gt; 82

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5731

Tyr	Tyr	Ser	Leu	Phe	Tyr	Ile	Ile	Asn	Gln	Leu	Cys	Ile	Ser	Ile	Lys
1				5				10						15	
Trp	Lys	Ser	Asn	Pro	Val	Lys	Leu	Lys	Lys	Ser	Asn	Tyr	Ser	Asp	Asn
			20					25					30		
Ile	Pro	Phe	Trp	Gly	Ala	Lys	Ile	Ile	Asn	Phe	Arg	Leu	Met	Gln	Ser
		35					40					45			
Ser	Ala	Phe	Ser	Phe	Cys	Pro	Lys	Arg	Gly	Cys	Leu	Leu	Leu	Pro	Gly
	50					55					60				
Ser	Gln	Thr	Met	Arg	Glu	Asn	Leu	Cys	His	Ser	Ala	Val	Leu	Lys	Glu
65					70					75					80
Ile	Ser														

&lt;210&gt; 5732

&lt;211&gt; 318

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5732

Gln	Ala	Thr	His	Lys	Ile	Ser	Ile	Asn	Met	Glu	Ser	Thr	Asn	Arg	Leu
1				5				10						15	
Arg	Tyr	Leu	Ile	Ala	Gly	Thr	Gly	Gly	Val	Gly	Gly	Ser	Ile	Ala	Gly
		20						25					30		
Phe	Leu	Ser	Leu	Ala	Gly	Lys	Asp	Ile	Thr	Cys	Ile	Ala	Arg	Gly	Ala
	35						40					45			
His	Leu	Gln	Ala	Ile	Gln	Gln	Asp	Gly	Leu	Lys	Leu	Lys	Ser	Asp	Leu
	50					55					60				
Lys	Gly	Glu	His	Ala	Leu	Arg	Ile	Asn	Ala	Cys	Thr	Ala	Glu	Glu	Tyr
65					70					75					80
Asn	Gly	Lys	Ala	Asp	Val	Ile	Phe	Val	Cys	Val	Lys	Gly	Tyr	Ser	Val
			85					90					95		
Asp	Ser	Ile	Thr	Glu	Leu	Ile	Lys	Arg	Ala	Ala	His	Asp	Arg	Thr	Ile
		100						105					110		
Val	Ile	Pro	Ile	Leu	Asn	Val	Tyr	Gly	Thr	Gly	Pro	Arg	Ile	Gln	Arg
		115					120					125			
Leu	Val	Pro	Gly	Val	Thr	Val	Leu	Asp	Gly	Cys	Ile	Tyr	Ile	Val	Gly
	130					135					140				
Phe	Val	Ser	Gly	Pro	Gly	Glu	Ile	Thr	Gln	Met	Gly	Thr	Ile	Phe	Arg
145					150					155					160

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Leu Val Tyr Gly Ala His Arg Gly Ile Leu Val Pro Ala Gly Leu Met  
 165 170 175  
 Glu Ala Val Gln Arg Asp Leu Gln Glu Ser Gly Ile Lys Val Glu Ile  
 180 185 190  
 Ser Pro Asp Ile Asn Arg Asp Thr Phe Ile Lys Trp Ser Phe Ile Ser  
 195 200 205  
 Ala Met Ala Val Thr Gly Ala Tyr Phe Asp Val Pro Met Gly Glu Val  
 210 215 220  
 Gln Lys Pro Gly Lys Val Arg Asp Thr Phe Ile Gly Leu Ser Thr Glu  
 225 230 235 240  
 Ser Ala Ala Leu Gly Lys Lys Leu Gly Ile Glu Phe Lys Glu Asp Ile  
 245 250 255  
 Val Thr Tyr Asn Leu Lys Val Ile Asp Lys Leu Ala Pro Glu Ser Thr  
 260 265 270  
 Ala Ser Met Gln Lys Asp Ile Ala Arg Gly His Glu Ser Glu Val Gln  
 275 280 285  
 Gly Leu Leu Phe Asp Met Ile Thr Ala Ala Glu Glu Gln Gly Ile Asp  
 290 295 300  
 Val Pro Thr Tyr Arg Glu Val Ala Lys Lys Phe Ile Lys Gln  
 305 310 315

&lt;210&gt; 5733

&lt;211&gt; 199

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5733

Asn Lys Leu His Thr Met Lys Arg Lys Leu Val Phe Ala Thr Asn Asn  
 1 5 10 15  
 Ala His Lys Leu Glu Glu Val Ser Ala Ile Leu Gly Asp Lys Val Glu  
 20 25 30  
 Leu Leu Ser Leu Asn Asp Ile Asn Cys His Thr Asp Ile Pro Glu Thr  
 35 40 45  
 Ala Glu Thr Leu Glu Gly Asn Ala Tyr Leu Lys Ser Ser Phe Ile Tyr  
 50 55 60  
 Arg Asn Tyr Gly Leu Asn Cys Phe Ala Asp Asp Thr Gly Leu Glu Val  
 65 70 75 80  
 Glu Ser Leu Gly Gly Ala Pro Gly Ile Tyr Ser Ala Arg Tyr Ala Gly  
 85 90 95  
 Gly Glu Gly His Asn Ala Glu Ala Asn Met Leu Lys Leu Leu His Glu  
 100 105 110  
 Leu Glu Gly Lys Asp Asn Arg Arg Ala Gln Phe Arg Thr Ala Ile Ser  
 115 120 125  
 Leu Ile Leu Asp Glu Lys Glu Tyr Leu Phe Glu Gly Ile Ile Lys Gly  
 130 135 140  
 Glu Ile Ile Lys Glu Lys Arg Gly Asp Ser Gly Phe Gly Tyr Asp Pro  
 145 150 155 160  
 Val Phe Val Pro Glu Gly Tyr Asp Arg Thr Phe Ala Glu Leu Gly Asn  
 165 170 175  
 Glu Ile Lys Asn Gln Ile Ser His Arg Ala Leu Ala Val Asn Lys Leu  
 180 185 190  
 Cys Glu Phe Leu Arg Ser Ile  
 195

&lt;210&gt; 5734

&lt;211&gt; 493

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5734

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Arg Tyr Ser Lys Thr Leu Lys Thr Leu Leu Tyr Ile Leu Val Phe Ser
1      5      10      15
Leu Cys Tyr Thr Asn Ala Tyr Cys Gln Ser Ile Pro Arg Glu Val Thr
20      25      30
Leu Asp Glu Val Ile Asn Arg Leu Ser Leu Glu Ser Ser Ala Lys
35      40      45
Ile Glu Leu Leu Asn Phe Gln Asn Asp Leu Leu Arg Tyr Glu Asn Tyr
50      55      60
Lys Lys Ser Phe Leu Pro Ala Phe Val Leu Asn Phe Asn Pro Ile Asn
65      70      75      80
Phe Asn Arg Ser Leu Arg Leu Leu Gln Gln Pro Ile Asp Gly Ser Tyr
85      90      95
Ser Tyr Val Glu Asp Asn Ser Asn Asn Thr Asn Phe Gly Thr Thr Val
100     105     110
Arg Gln Lys Ile Ser Ile Thr Gly Gly Glu Leu Ser Ile Gly Ser Asn
115     120     125
Ile Asn Tyr Leu Asn Glu Phe Ser Arg Lys Gln Asn Ser Phe Ser Thr
130     135     140
Asn Pro Phe Phe Ile Ser Tyr Ser Gln Gln Leu Trp Gly Gly Gly Lys
145     150     155     160
Leu Gln Arg Leu Glu Asn Lys Ile Glu Arg Ala Lys Asn Glu Val Ala
165     170     175
Val Lys Gln Tyr Cys Ser Asn Ile Ala Gln Ile Gln Gln Gln Ala Leu
180     185     190
Thr Leu Tyr Leu Ser Ala Ile Leu Ser Lys Met Asp Ser Glu Leu Ala
195     200     205
Ile Asp Ile Lys Gln Ser Asn Asp Thr Leu Leu His Ile Ala Glu Ile
210     215     220
Lys Leu Arg Asn Gly Ser Ile Thr Glu Tyr Asp Tyr Lys Gln Met Glu
225     230     235     240
Leu Gln Ser Leu Asn Leu Gln Tyr Met Tyr Glu Asn Ala Val Lys His
245     250     255
Tyr Ala Glu Ser Ile Gln Lys Leu Phe Thr Phe Leu Gly Ile Glu Asn
260     265     270
Asn Ala Glu Ile Thr Ile Pro Asp Phe Asp Leu Pro Leu Thr Ile Asp
275     280     285
Ala Arg Leu Val Ile Tyr Tyr Val Lys Lys Asn Asn Pro Ile Ser Asn
290     295     300
Gln Gln Glu Ile Gln Gln Leu Glu Glu Glu Lys Asn Leu Phe Ser Ile
305     310     315     320
Lys Leu Lys Asn Arg Phe Asn Gly Asn Ile Ser Leu Asn Tyr Gly Ile
325     330     335
Asn Gln Tyr Ala Glu Thr Leu Ala Asp Ala Tyr Arg His Gly Asn Thr
340     345     350
Arg Gln Ser Val Ile Ile Glu Phe Gln Ile Pro Ile Phe Gln Trp Gly
355     360     365
Ile Asn Lys Asn Asn Ile Arg Ile Ala Lys Asn Asn Tyr Asp Ala Ser
370     375     380
Arg Leu Arg Ile Glu Lys Lys Met Phe Glu Phe Glu Asn Glu Val Lys
385     390     395     400
Glu Lys Ile Asn Ala Tyr Asp His Ser Val Lys Leu Trp Leu Thr Ala
405     410     415
Ser Arg Ala Tyr Ala Leu Ser Lys Glu Gln Tyr Lys Met Leu Thr Lys
420     425     430
Lys Phe Ser Leu Gly Lys Val Ser Val Tyr Glu Leu Ala Thr Ala Gln
435     440     445
Lys Glu Arg Asn Asp Ala Met Gln Arg Tyr Tyr Ser Ala Ile Lys Asp
450     455     460

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Ser	Tyr	Glu	Ser	Phe	Phe	Thr	Leu	Arg	Asn	Leu	Ala	Leu	Tyr	Asp	Phe
465					470					475					480
Lys	Lys	Asn	Val	Glu	Leu	Glu	Lys	Ile	Leu	Phe	Asn	Asp			
				485					490						

<210> 5735  
 <211> 192  
 <212> PRT  
 <213> B.fragilis

<400> 5735

Phe	Ile	Tyr	Lys	Pro	Leu	Ile	Ile	Thr	Ala	Met	Lys	Lys	Leu	Thr	Lys
1				5					10					15	
Lys	Asn	Leu	Ser	Glu	Leu	Ala	Lys	Thr	Met	Pro	Val	Ile	Glu	Glu	Ser
			20					25					30		
Leu	Gln	Met	Ser	Tyr	Val	Gly	Gly	Gly	Asn	Gly	Thr	Ser	Ala	Asn	Pro
			35					40					45		
Tyr	Thr	Lys	Val	Glu	Phe	Asp	Ser	Met	Leu	Ser	Asn	Asp	Asn	Trp	Asn
			50			55					60				
Gly	Gly	Tyr	Val	Glu	Gly	Met	Gly	Tyr	Val	Ala	Pro	Asn	Thr	Tyr	Ile
65					70					75					80
Tyr	Gly	Asn	Ser	Val	Tyr	Trp	Gly	Ser	Val	Ser	Gln	Asp	Tyr	Tyr	Thr
			85						90					95	
Phe	Pro	Asp	Tyr	Val	Thr	Ser	Leu	Ser	Ser	Asp	Gly	Leu	Asn	Gln	Met
			100					105					110		
Ala	Glu	Ser	Leu	Ala	Gly	Ala	Ile	Pro	Gly	Val	Gly	Ser	Tyr	Thr	Ala
			115				120					125			
Tyr	Leu	Ser	Gln	Glu	Leu	Gly	Asp	Met	Ser	Arg	Glu	Ile	Gln	Ser	Glu
			130			135					140				
Leu	Leu	Lys	Lys	Gly	Tyr	Asn	Gly	Ser	Ser	Ser	Phe	Thr	Ile	Val	Arg
145					150					155					160
Thr	Tyr	Met	Gly	Ser	Ser	Val	Lys	Phe	Ser	Val	Tyr	Asn	Ala	Asn	Asn
				165				170					175		
Gly	Glu	Leu	Ile	Thr	Ser	Lys	Thr	Ile	Asn	Met	Phe	Gly	Phe	Trp	Gln
			180					185					190		

<210> 5736  
 <211> 506  
 <212> PRT  
 <213> B.fragilis

<400> 5736

His	Glu	Asn	Asn	Thr	Ile	Ile	Met	Ala	Phe	Lys	Ser	Ile	Ser	Ala	Ala
1				5					10					15	
Glu	Ala	Ala	Ser	Leu	Val	Lys	His	Gly	Tyr	Asn	Ile	Gly	Leu	Ser	Gly
			20					25					30		
Phe	Thr	Pro	Ala	Gly	Thr	Ala	Lys	Ala	Val	Thr	Ser	Glu	Ile	Ala	Lys
			35				40					45			
Ile	Ala	Glu	Ala	Glu	His	Ala	Lys	Gly	Asn	Pro	Phe	Gln	Ile	Gly	Ile
			50			55					60				
Phe	Thr	Gly	Ala	Ser	Thr	Gly	Asp	Ser	Cys	Asp	Gly	Ile	Leu	Ser	Arg
65					70				75						80
Val	Lys	Ala	Ile	Arg	Tyr	Arg	Ala	Pro	Tyr	Thr	Thr	Asn	Pro	Asp	Phe
			85					90					95		
Arg	Lys	Ala	Val	Asn	Asn	Gly	Glu	Ile	Ala	Tyr	Asn	Asp	Ile	His	Leu
			100				105					110			
Ser	Gln	Met	Ala	Gln	Glu	Val	Arg	Tyr	Gly	Phe	Met	Gly	Lys	Val	Asn
			115				120					125			
Val	Ala	Ile	Ile	Glu	Ala	Cys	Glu	Val	Thr	Pro	Asp	Gly	Lys	Ile	Tyr

130	135	140
Leu Thr Ala Ala Gly Gly Ile Ala Pro Thr Val Cys Arg Leu Ala Asp		
145	150	155
Gln Ile Ile Val Glu Leu Asn Ser Ala His Ser Lys Asn Met Met Gly		
	165	170
Met His Asp Val Tyr Glu Pro Leu Asp Pro Pro Tyr Arg Arg Glu Ile		
	180	185
Pro Ile Tyr Lys Pro Ser Asp Arg Ile Gly Leu Pro Tyr Ile Gln Val		
	195	200
Asp Pro Lys Lys Ile Val Gly Ile Val Glu Thr Asn Trp Pro Asp Glu		
	210	215
Ala Arg Ser Phe Ala Ala Ala Asp Pro Ile Thr Asp Lys Ile Gly Gln		
225	230	235
Asn Val Ala Asp Phe Leu Ala Ala Asp Met Lys Arg Gly Ile Ile Pro		
	245	250
Ser Thr Phe Leu Pro Leu Gln Ser Gly Val Gly Asn Ile Ala Asn Ala		
	260	265
Val Leu Gly Ala Leu Gly Arg Asp Gln Thr Ile Pro Ala Phe Glu Met		
	275	280
Tyr Thr Glu Val Ile Gln Asn Ser Val Ile Gly Leu Ile Arg Glu Gly		
	290	295
Arg Val Lys Phe Gly Ser Ala Cys Ser Leu Thr Val Thr Asn Asp Cys		
305	310	315
Leu Gln Gly Ile Tyr Asp Asp Met Asp Phe Phe Arg Asp Lys Leu Ile		
	325	330
Leu Arg Pro Ser Glu Ile Ser Asn Ser Pro Glu Val Val Arg Arg Leu		
	340	345
Gly Ile Ile Ser Ile Asn Thr Ala Ile Glu Ala Asp Ile Tyr Gly Asn		
	355	360
Val Asn Ser Thr His Ile Gly Gly Thr Lys Met Met Asn Gly Ile Gly		
	370	375
Gly Ser Gly Asp Phe Thr Arg Asn Ala Tyr Ile Ser Ile Phe Thr Cys		
385	390	395
Pro Ser Val Ala Lys Glu Gly Lys Ile Ser Ser Ile Val Pro Met Val		
	405	410
Ser His Leu Asp His Ser Glu His Ser Val Asn Ile Val Ile Thr Glu		
	420	425
Gln Gly Val Ala Asp Leu Arg Gly Lys Ser Pro Lys Glu Arg Ala Gln		
	435	440
Ala Ile Ile Glu Asn Cys Ala His Pro Asp Tyr Lys Gln Ile Leu Trp		
	450	455
Asp Tyr Leu Lys Leu Ala Gly Asn Lys Ser Gln Thr Pro His Ala Ile		
465	470	475
Gln Ala Ala Leu Gly Met His Ala Glu Leu Ala Lys Ser Gly Asp Met		
	485	490
Lys Asn Val Asn Trp Ala Glu Tyr Glu Arg		
	500	505

&lt;210&gt; 5737

&lt;211&gt; 148

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5737

Ser Cys Tyr Asn Glu Val Leu Tyr Lys Ser Ile Arg Lys Thr Asn Ser		
1	5	10
Lys Lys Asn Arg Ser Gln Tyr Met Asn Ile Ala Phe Leu Thr Thr Leu		
	20	25
Asn Pro Ala Asp Ile Asn Asn Trp Ser Gly Thr Thr Phe His Leu Phe		
		30



35	40	45
His Ala Leu Ser Arg Lys	His His Val Lys Val	Ile Gly Gln Asn Thr
50	55	60
Leu Pro Gln Ala Ala Tyr	Phe Thr Lys Asp Asn Cys	Ile Lys Lys Asn
65	70	75
Pro Leu Glu Asn Tyr Val	Ser Val Phe Gly Lys	Leu Cys Thr Glu Gln
85	90	95
Leu Thr Asn Tyr Asp Leu	Val Phe Phe Gly Asp	Leu Tyr Leu Ala Pro
100	105	110
Phe Leu Asp Val Asn Val	Pro Val Val His Leu	Ser Asp Val Thr Tyr
115	120	125
His Ser Phe Gln Ser Tyr	Leu Asn Pro Leu Lys	Asn Glu Glu Arg Tyr
130	135	140
Arg Lys Leu Glu		
145		

&lt;210&gt; 5738

&lt;211&gt; 457

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5738

Arg Thr Gly Lys Lys Met Asn Ser Arg	Ile Gln Lys Gln Glu Gln Pro
1	5 10 15
Ile Cys Ser Pro Lys Ile Ile Leu Pro	Asn Pro Asn Lys Lys Ser Asp
20	25 30
Val Ile Ala Arg Ser Glu Glu Val Gln	Ala Ile Ile Asp Arg Met Pro
35	40 45
Thr Tyr Trp Thr Lys Trp Val Ile Leu	Cys Val Gly Val Leu Met Gly
50	55 60
Met Ile Ile Leu Leu Gly Phe Leu Ile	Gln Tyr Pro Asp Thr Val Asp
65	70 75 80
Gly Gln Ile Ser Val Thr Ala Asn Ala	Ala Pro Val Arg Leu Val Ala
85	90 95
Asn Ser Asn Gly Arg Ile Thr Leu Phe	Gln Pro Asn Lys Ala Leu Leu
100	105 110
His Lys Asn Asp Val Ile Ser Cys Ile	Glu Ser Gly Ala Asp Tyr Lys
115	120 125
His Ile Leu Trp Ile Asp Ser Phe Leu	Lys Thr Leu Asn Asp Lys Ser
130	135 140
Thr Ile Arg Val Ala Leu Pro Asp Thr	Leu Leu Leu Gly Glu Val Ser
145	150 155 160
Ser Ala Tyr Asn Ser Phe Leu Leu Ser	Phe Leu Gln Tyr Glu Arg Leu
165	170 175
Leu Thr Ser Asp Ile Tyr Ser Thr Met	Arg Gln Lys Leu Gln Gln Gln
180	185 190
Ile Ile Ser Asp Glu Ala Val Ile Ala	Asn Phe Asn Asn Glu Leu Arg
195	200 205
Leu Lys Lys Gln Ile Leu Asp Asn Ser	Gln Asn Gln Leu Ser Lys Asp
210	215 220
Ser Ile Leu Leu Ser Met Lys Gly Ile	Ser Glu Gln Glu Tyr Gln Gln
225	230 235 240
Lys Phe Ser Thr His Leu Ser Leu Lys	Glu Ser Gln Leu Asn Leu Gln
245	250 255
Ser Asn Arg Gln Met Lys Gln Ser Glu	Ile Ser Arg Asn Gln Leu Glu
260	265 270
Ile Gln Arg Ile Cys Leu Glu Glu Thr	Glu Ala Lys Glu Lys Ala Tyr
275	280 285
Ser Asp Tyr Ile Thr Arg Lys Asn Glu	Leu Ser Asn Ala Ile Lys Leu

290	295	300
Trp Lys Glu His Tyr	Leu Gln Tyr Ala Pro Val	Glu Gly Glu Leu Glu
305	310	315
Tyr Leu Gly Phe Trp	Arg Asn Asn Arg Phe Val	Gln Ser Gly Gln Glu
	325	330
Leu Phe Ser Ile Ile	Pro Asp Lys Thr Asn Ile	Leu Gly Glu Val Val
	340	345
Ile Pro Ser Phe Gly	Ala Gly Lys Val Glu Val	Gly Gln Thr Val Asn
	355	360
Val Lys Met Asp Asn	Tyr Pro Tyr Asp Glu Tyr	Gly Leu Leu Lys Gly
	370	375
Val Val Lys Ser Val	Ser Arg Ile Thr Asn Lys	Ile Lys Thr Gln Asn
385	390	395
Gly Asp Met Asp Thr	Tyr Leu Val Ile Ile Ser	Phe Pro Asp Gly Thr
	405	410
Leu Thr Asn Phe Gly	Lys Ile Leu Pro Leu Asp	Phe Glu Thr Lys Gly
	420	425
Thr Val Glu Ile Ile	Thr Lys Arg Lys Arg Leu	Ile Glu Arg Leu Phe
	435	440
Asp Asn Leu Lys Ser	Lys Gly Glu Lys	
450	455	

&lt;210&gt; 5739

&lt;211&gt; 607

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5739

Ile Ile Leu Asn Met	Asn Ser Ile Thr Lys	Leu His Val Leu Phe Phe
1	5	10
Phe Val Phe Ile Phe	Tyr Thr Val Ser Cys	Thr Ala Lys Leu Glu Lys
	20	25
Gln Thr Tyr Thr Asn	Val Tyr Asp Leu His	Phe Ala Met Arg Ser Asp
	35	40
Ser Ala Val Val Tyr	Pro Trp Arg Glu Asn	Gly Ala Tyr Ser Asn Tyr
	50	55
Thr Ile Pro Ala Tyr	Ile Gln Asp Ser Asn	Arg Asn Leu Phe Ala Lys
65	70	75
Lys Tyr Phe Lys Gly	Phe Pro Phe Ser Lys	Arg Leu Arg Ser Glu Tyr
	85	90
Glu Gln Arg Ile Leu	Leu Pro Asn Asn Asn	Ile Lys Glu Ala Val Ile
	100	105
Gly Phe Glu Gly Lys	Gly Asp Asn Ile Lys	Leu Val Ser Ile Ile Leu
	115	120
Asp Ala Ile Gly Lys	Gln Glu Asn Ile Leu	Phe Ser Asp Thr Leu Arg
	130	135
Phe Arg Pro Asp Ser	Ile Leu Ser Leu Val	Thr Gln Asn Ile Asn Leu
145	150	155
Thr Asn Ala Glu Met	Leu Asn Val Arg Ile	Asn Val Glu Gly Glu Ile
	165	170
Asp Lys Asn Ala Tyr	Ile Ala Phe Ser Arg	Leu Asp Ile Leu Ile Asp
	180	185
Gly Lys Pro Ile Asp	Glu Phe Pro Val Arg	Thr Leu Ser Pro Leu Ile
	195	200
Val Asp Lys Lys Ile	Asn Tyr Thr Gly Ile	Asn Val Asp Arg Lys Ile
	210	215
Gly Leu Glu Gln Ile	Asn Glu Ile Asn Asp	Lys Lys Ile Ile Gly Leu
225	230	235
Gly Glu Ser Val His	Gly Asn Asp Gly Ile	Lys Asn Leu Ala Tyr Gln

[illegible]

<400> 5740

Met	Lys	Ile	Lys	Lys	Tyr	Cys	Arg	Tyr	Ile	His	Leu	Trp	Leu	Ser	Leu
1				5					10					15	
Pro	Ala	Gly	Ile	Leu	Ile	Ser	Ile	Ile	Cys	Phe	Thr	Gly	Ala	Ile	Leu
			20					25					30		
Val	Phe	Lys	Glu	Glu	Leu	Leu	Thr	Ile	Met	Gly	Tyr	Asp	Ser	Ile	Arg
		35					40					45			
Glu	Ser	Pro	Leu	Met	Ile	Val	Met	Lys	Leu	His	Arg	Trp	Val	Lys	Asp

50 55 60  
 Asp Asn Arg Pro Pro Gly Lys Met Ile Val Ser Ile Phe Thr Phe Phe  
 65 70 75 80  
 Ser Ser Leu Ser

<210> 5741  
 <211> 104  
 <212> PRT  
 <213> B.fragilis

<400> 5741  
 Asn Ile Lys Lys Gly Arg Arg Arg Leu Met Phe Asp Tyr His Ser Val  
 1 5 10 15  
 Leu Gly Leu Tyr Ala Ala Leu Ile Leu Leu Val Cys Ala Leu Thr Gly  
 20 25 30  
 Leu Met Trp Ser Phe Gln Trp Tyr Arg Asp Ile Val Ser Phe Ile Phe  
 35 40 45  
 Asp Ala Glu Val Lys Arg Gly Ala Pro Ile Trp Lys Ile Val Arg Ala  
 50 55 60  
 Leu His Phe Gly Thr Tyr Ala Gly Met Phe Ser Lys Ile Val Thr Phe  
 65 70 75 80  
 Ile Ala Ala Leu Ile Gly Thr Ser Leu Pro Val Thr Gly Tyr Trp Met  
 85 90 95  
 Tyr Leu Lys Arg Lys Lys Leu Leu  
 100

<210> 5742  
 <211> 538  
 <212> PRT  
 <213> B.fragilis

<400> 5742  
 Phe Met Lys Asn Asn Cys Leu Ile Cys Ser Leu Leu Phe Ala Ser Gly  
 1 5 10 15  
 Ile Gln Asn Ala Trp Gly Thr Gln Ile Thr Asp Arg Lys Ala Asn Pro  
 20 25 30  
 Asp Gln Ala Lys Pro Asn Ile Ile Leu Ile Met Cys Asp Asp Met Gly  
 35 40 45  
 Phe Ser Asp Leu Ser Cys Tyr Gly Gly Glu Val His Thr Pro His Ile  
 50 55 60  
 Asp Phe Leu Ala Glu Asn Gly Ile Arg Phe Ser Gln Phe Lys Asn Thr  
 65 70 75 80  
 Gly Arg Ser Cys Pro Ser Arg Ala Ala Leu Leu Thr Gly Arg Tyr Gln  
 85 90 95  
 His Glu Val Gly Met Gly Trp Met Thr Ala Val Asp Glu His Arg Pro  
 100 105 110  
 Gly Tyr Arg Gly Gln Ile Ser Asp Arg Tyr Pro Thr Ile Ala Glu Val  
 115 120 125  
 Phe Arg Glu Asn Gly Tyr His Thr Tyr Met Ser Gly Lys Trp His Val  
 130 135 140  
 Thr Val Glu Gly Ala Phe Thr Gln Pro Asn Gly Ser Tyr Pro Val Glu  
 145 150 155 160  
 Arg Gly Phe Glu Lys Tyr Tyr Gly Cys Leu Ser Gly Gly Gly Asn Tyr  
 165 170 175  
 Tyr Thr Pro Lys Pro Val Phe Ser Gly Leu Gln Arg Ile Thr Glu Phe  
 180 185 190  
 Pro Lys Asp Tyr Tyr Tyr Thr Thr Ala Ile Thr Asp Ser Ala Val Ser  
 195 200 205

Phe Ile Arg Gln His Pro Val Asp Glu Pro Met Phe Met Tyr Leu Ala  
 210 215 220  
 His Tyr Ala Pro His Leu Pro Leu Gln Ala Pro Lys Glu Arg Val Glu  
 225 230 235 240  
 Ala Cys Arg Glu Lys Tyr Lys Ala Gly Tyr Asp Val Leu Arg Lys Gln  
 245 250 255  
 Arg Phe Glu Arg Ile Arg Arg Asn Gly Leu Ile Asp Ile Glu Arg Glu  
 260 265 270  
 Leu Pro Val Phe Glu Lys Glu Phe Gly Gly Lys Arg Pro Ala Trp Asn  
 275 280 285  
 Ser Leu Thr Pro Gln Gln Gln Glu Arg Trp Ile Thr Glu Met Ala Thr  
 290 295 300  
 Tyr Ala Ala Met Ile Glu Ile Met Asp Asp Gly Ile Gly Glu Val Ile  
 305 310 315 320  
 Lys Ala Thr Lys Glu Lys Gly Ile Phe Asp Asn Thr Ile Phe Leu Phe  
 325 330 335  
 Leu Ser Asp Asn Gly Ala Thr Asn Glu Gly Asp Met Ile Thr Gln Leu  
 340 345 350  
 Arg Ala Asp Leu Ser Asn Thr Pro Phe Arg Ser Tyr Lys Gln Trp Cys  
 355 360 365  
 Phe Gln Gly Gly Thr Ser Ala Pro Leu Ile Ile Met Tyr Gly Gly Gly  
 370 375 380  
 Gln Pro Asp Gly Lys Lys Glu Ala Val Arg His Glu Phe Thr His Ile  
 385 390 395 400  
 Ile Asp Leu Phe Pro Thr Cys Leu Asp Met Ala Ser Ile Glu Tyr Pro  
 405 410 415  
 Arg Glu Phe Arg Asn His Ala Ile Asp Ala Pro Gly Gly Arg Thr Ile  
 420 425 430  
 Leu Pro Ala Leu Lys Gly Lys Lys Leu Ser Lys Arg Asp Leu Phe Phe  
 435 440 445  
 Glu His Gln Thr Ser Cys Gly Ile Ile Ser Gly Asp Trp Lys Leu Val  
 450 455 460  
 Arg Ala Asn Gly Lys Gln Pro Trp Glu Leu Phe Asn Leu Leu Gln Asp  
 465 470 475 480  
 Pro Phe Glu Gln Asn Asp Leu Ser Ala Arg Tyr Pro Asp Arg Val Lys  
 485 490 495  
 Thr Leu Glu Lys Lys Trp Asn Gln Trp Ala Glu Lys Gln Gln Val Phe  
 500 505 510  
 Pro Phe Glu Tyr Arg Pro Trp Thr Lys Arg Ile Asn Tyr Tyr Lys Ser  
 515 520 525  
 Leu Tyr Pro Asp Gln Ser Gly Lys Asp Leu  
 530 535

&lt;210&gt; 5743

&lt;211&gt; 338

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5743

Lys Lys Arg Lys Asn Lys Asn Ile Met Asn Arg Glu Glu Trp Val Asn  
 1 5 10 15  
 Lys Gly Phe Val Asp Glu Pro Val Asp Lys Ser Ile Asp Leu Lys Ala  
 20 25 30  
 Ala Ile Asn Glu Leu Lys Lys Glu Lys Asn Ala Val Ile Leu Gly His  
 35 40 45  
 Tyr Tyr Gln Lys Gly Glu Ile Gln Asp Ile Ala Asp Tyr Ile Gly Asp  
 50 55 60  
 Ser Leu Ala Leu Ala Gln Ile Ala Ala Lys Thr Asp Ala Asp Ile Leu  
 65 70 75 80

Val Met Cys Gly Val His Phe Met Gly Glu Thr Ala Lys Val Leu Cys  
 85 90 95  
 Pro Asp Lys Lys Val Leu Val Pro Asp Leu Asn Ala Gly Cys Ser Leu  
 100 105 110  
 Ala Asp Ser Cys Pro Ala Asp Lys Phe Ala Glu Phe Val Lys Ala His  
 115 120 125  
 Pro Gly Tyr Thr Val Ile Ser Tyr Val Asn Thr Thr Ala Ala Val Lys  
 130 135 140  
 Ala Val Thr Asp Val Val Val Thr Ser Thr Asn Ala Lys Gln Ile Val  
 145 150 155 160  
 Glu Ser Phe Pro Lys Asp Glu Lys Ile Ile Phe Gly Pro Asp Arg Asn  
 165 170 175  
 Leu Gly Asn Tyr Ile Asn Ser Ile Thr Gly Arg Glu Met Leu Leu Trp  
 180 185 190  
 Asp Gly Ala Cys His Val His Glu Gln Phe Ser Val Glu Lys Ile Val  
 195 200 205  
 Glu Leu Lys Ala Gln Tyr Pro Asp Ala Val Val Leu Ala His Pro Glu  
 210 215 220  
 Cys Lys Ser Val Val Leu Lys Leu Ala Asp Met Val Gly Ser Thr Ala  
 225 230 235 240  
 Ala Leu Leu Lys Tyr Ala Val Asn Ser Asp Lys Gln Arg Phe Ile Val  
 245 250 255  
 Ala Thr Glu Ala Gly Ile Leu His Glu Met Gln Lys Lys Cys Pro Gln  
 260 265 270  
 Lys Thr Phe Ile Pro Ala Pro Pro Asn Asp Ser Thr Cys Gly Cys Asn  
 275 280 285  
 Glu Cys Asn Phe Met Arg Leu Asn Thr Leu Glu Lys Leu Tyr Asn Cys  
 290 295 300  
 Leu Lys Tyr Glu Phe Pro Glu Val Thr Val Asp Pro Glu Val Ala Arg  
 305 310 315 320  
 Glu Ala Val Lys Pro Ile Lys Arg Met Leu Glu Ile Ser Ala Lys Leu  
 325 330 335  
 Gly Leu

&lt;210&gt; 5744

&lt;211&gt; 474

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5744

Asn Thr Met Lys Asn Lys Leu Phe Ile Leu Phe Ala Phe Cys Ile Ser  
 1 5 10 15  
 Val His Val Tyr Ala Gln Gln Pro Ser Arg Glu Ile Pro Leu Lys Tyr  
 20 25 30  
 Gly Ala Thr Asn Ile Gly Lys Arg Gln Asp Asp Ala Met Lys Arg Phe  
 35 40 45  
 Arg Asn Asn Arg Leu Gly Glu Phe Ile His Trp Gly Leu Tyr Ala Ile  
 50 55 60  
 Pro Gly Gly Glu Trp Lys Gly Lys Val Tyr Asn Gly Ala Ala Glu Trp  
 65 70 75 80  
 Leu Lys Ser Trp Ala Lys Val Pro Ala Ala Asp Trp Leu Glu Leu Met  
 85 90 95  
 Lys Gln Trp Asn Pro Val Lys Phe Asp Ala Arg Gln Trp Ala Arg Met  
 100 105 110  
 Ala Lys Glu Met Gly Val Lys Tyr Val Lys Ile Thr Thr Lys His His  
 115 120 125  
 Glu Gly Phe Cys Leu Trp Pro Ser Gln Tyr Ser Gln Tyr Thr Val Ala  
 130 135 140

Gln Thr Pro Tyr Arg Lys Asp Ile Leu Gly Glu Leu Val Lys Ala Tyr  
 145 150 155 160  
 Asn Asp Glu Gly Ile Asp Val His Phe Tyr Phe Ser Val Met Asp Trp  
 165 170 175  
 Ser His Pro Asp Tyr Arg Tyr Glu Ile Thr Ser Lys Glu Asp Ser Ile  
 180 185 190  
 Ala Phe Ser Arg Phe Leu Thr Phe Thr Asp His Gln Leu Lys Glu Leu  
 195 200 205  
 Ala Thr Arg Tyr Pro Thr Val Lys Asp Phe Trp Phe Asp Gly Thr Trp  
 210 215 220  
 Asp Ala Ser Ile Lys Lys Asn Gly Trp Trp Thr Ala His Ala Glu Gln  
 225 230 235 240  
 Met Leu Lys Glu Leu Val Pro Gly Val Thr Val Asn Ser Arg Leu Arg  
 245 250 255  
 Ala Asp Asp Tyr Gly Lys Arg His Phe Asp Ser Asn Gly Arg Leu Met  
 260 265 270  
 Gly Asp Tyr Glu Ser Gly Tyr Glu Arg Arg Leu Pro Asp Pro Val Lys  
 275 280 285  
 Asp Leu Gln Val Thr Lys Trp Asp Trp Glu Ala Cys Met Thr Val Pro  
 290 295 300  
 Glu Asn Gln Trp Gly Tyr His Lys Asp Trp Ser Leu Ser Tyr Val Lys  
 305 310 315 320  
 Thr Pro Ile Glu Val Ile Asp Arg Ile Val His Ala Val Ser Met Gly  
 325 330 335  
 Gly Asn Met Val Val Asn Phe Gly Pro Gln Pro Asp Gly Asp Phe Arg  
 340 345 350  
 Ser Glu Glu Lys Glu Leu Ala Met Ala Leu Gly Cys Trp Met Lys Arg  
 355 360 365  
 Tyr Gly Glu Cys Ile Tyr Gly Cys Asp Tyr Ala Gly Trp Asp Lys Gln  
 370 375 380  
 Asp Trp Gly Tyr Tyr Thr Arg Lys Gly Gln Glu Val Tyr Met Val Val  
 385 390 395 400  
 Phe Asn Arg Pro Tyr Ser Gly Leu Leu Lys Val Lys Ile Pro Lys Gly  
 405 410 415  
 Thr Glu Ile Glu Arg Ala Val Leu Pro Asp Gly Gln Val Val Lys Val  
 420 425 430  
 Thr Glu Thr Ala Arg Asn Glu Tyr Asn Val Ala Met Pro Ser Gln Asp  
 435 440 445  
 Pro Gly Glu Pro Phe Ile Ile Lys Leu Gln Val Lys Glu Ala Ser Gly  
 450 455 460  
 Ala Ala Asp Gly Tyr Arg Asp Ala Leu Thr  
 465 470

&lt;210&gt; 5745

&lt;211&gt; 304

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5745

Gln Gln Pro Lys Ser Lys Val Ser Met Cys Leu Leu Ile Gly Lys Leu  
 1 5 10 15  
 Leu Lys Asn Ser Ser Asn Asn Lys Glu Ile Asn Met Asn Asn Leu Leu  
 20 25 30  
 Leu Ser Ile Asn Trp Asn Pro Asn Pro Glu Leu Phe Asn Leu Phe Gly  
 35 40 45  
 Ile Ser Ile Arg Tyr Tyr Gly Leu Leu Trp Ala Ile Gly Ile Phe Phe  
 50 55 60  
 Ala Tyr Ile Val Val His Tyr Gln Tyr Arg Asp Lys Lys Ile Asp Glu  
 65 70 75 80

Lys Lys Phe Glu Pro Leu Phe Phe Tyr Cys Phe Phe Gly Ile Leu Ile  
 85 90 95  
 Gly Ala Arg Leu Gly His Cys Leu Phe Tyr Asp Pro Gly Tyr Tyr Leu  
 100 105 110  
 Asn His Phe Trp Glu Met Ile Leu Pro Val Lys Phe Leu Pro Gly Gly  
 115 120 125  
 Gly Trp Lys Phe Thr Gly Tyr Glu Gly Leu Ala Ser His Gly Gly Thr  
 130 135 140  
 Leu Gly Leu Ile Ile Ser Leu Trp Leu Tyr Cys Arg Lys Thr Lys Met  
 145 150 155 160  
 Asn Tyr Met Asp Val Val Asp Met Ile Ala Val Ala Thr Pro Ile Thr  
 165 170 175  
 Ala Cys Phe Ile Arg Leu Ala Asn Leu Met Asn Ser Glu Ile Ile Gly  
 180 185 190  
 Lys Val Thr Asp Val Ser Trp Ala Phe Val Phe Glu Arg Val Asp Met  
 195 200 205  
 Gln Pro Arg His Pro Ala Gln Leu Tyr Glu Ala Ile Ala Tyr Phe Ile  
 210 215 220  
 Leu Phe Leu Val Met Met Phe Leu Tyr Lys Asn Tyr Ser Lys Lys Leu  
 225 230 235 240  
 His Arg Gly Phe Phe Phe Gly Leu Cys Leu Thr Ala Ile Phe Thr Phe  
 245 250 255  
 Arg Phe Phe Val Glu Phe Leu Lys Glu Asn Gln Val Asp Phe Glu Asn  
 260 265 270  
 Ser Met Ala Leu Asn Met Gly Gln Trp Leu Ser Ile Pro Phe Val Ile  
 275 280 285  
 Ile Gly Ile Tyr Phe Met Phe Phe Tyr Gly Lys Lys Lys Ser Val Lys  
 290 295 300

&lt;210&gt; 5746

&lt;211&gt; 244

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5746

His Gly Thr Glu His Gly Ser Met Val Lys His Pro Val Arg Asn Tyr  
 1 5 10 15  
 Arg His Leu Leu Tyr Val Phe Leu Arg Lys Glu Lys Glu Cys Lys Met  
 20 25 30  
 Lys His Ile Ile Asp Ile Lys Thr Trp Glu Arg Lys Glu Asn Tyr Glu  
 35 40 45  
 Phe Phe Leu Gly Phe Gln Asn Pro Thr Ile Ser Ile Thr Ser Glu Val  
 50 55 60  
 Glu Cys Ser Gly Ala Arg Thr Arg Ala Lys Thr Ala Gly Glu Ser Phe  
 65 70 75 80  
 Phe Leu His Tyr Leu Tyr Ala Val Leu Arg Ala Val Asn Glu Ile Lys  
 85 90 95  
 Glu Phe Arg Phe Arg Ile Asp Ser Glu Gly Arg Val Val Tyr Phe Asp  
 100 105 110  
 Thr Val Asp Met Leu Thr Pro Ile Lys Val Ala Asp Asn Gly Arg Phe  
 115 120 125  
 Phe Thr Val Arg Leu Pro Trp Tyr Pro Asp Phe Lys Thr Phe Tyr Thr  
 130 135 140  
 Glu Ala Lys Ala Ile Ile Ser Gly Ile Asp Pro Asp Lys Asp Pro Tyr  
 145 150 155 160  
 Glu Ala Glu Lys Thr Gly Gly Ser Asp Leu Leu Asp Val Val Leu Leu  
 165 170 175  
 Ser Ala Thr Pro Asp Leu Tyr Phe Thr Ser Leu Thr Cys Thr Gln Glu  
 180 185 190



His Arg His Gly Gly Asn Tyr Pro Leu Met Asn Ala Gly Lys Ala Val  
 195 200 205  
 Ile Arg Gly Gly Val Leu Val Met Pro Ile Ala Met Thr Ile His His  
 210 215 220  
 Gly Phe Ile Asp Gly His His Leu Ser Leu Phe Tyr Lys Lys Val Glu  
 225 230 235 240  
 Glu Phe Leu Lys

&lt;210&gt; 5747

&lt;211&gt; 627

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5747

Ala Tyr Asn Glu Asn Lys Thr Lys Thr Gly Lys Asn Lys Gly Asp Thr  
 1 5 10 15  
 Glu Ala Asp Arg Lys Phe Ile Lys Thr Pro Val Met Lys Tyr Phe Ile  
 20 25 30  
 Leu Leu Ala Ser Val Leu Phe Leu Ala Gln Ser Cys Ser Val Ala Pro  
 35 40 45  
 Ser Met Arg Glu Ser Ala Arg Ser Tyr Asp Trp Val Ala Asn Thr Asn  
 50 55 60  
 Phe Ser Trp Gln Ser Lys Ile Asp Ser Ala Ile Ser Ser Tyr Pro Leu  
 65 70 75 80  
 Leu Leu His Pro Ser Tyr Glu Ala Lys Gly Ser Val Gly Phe Thr Val  
 85 90 95  
 Pro Val Phe Tyr Arg Met Asp Lys Lys Arg Val Gly Val Glu Val Arg  
 100 105 110  
 Ile Lys Tyr Lys Thr Glu Asn Cys Asn Asp Leu Cys Leu Lys Leu Ser  
 115 120 125  
 Gly Ile Gly Glu Cys Gly Lys Val Ile Ser Ala Asp Thr Phe Arg Leu  
 130 135 140  
 Ser Ala Ala Glu Ala Trp Thr Val Ala Arg Arg Ser Val Asp Met Ala  
 145 150 155 160  
 Ser Pro Leu Leu Leu Gly Val Ala Leu Glu Ala Arg Gly Glu Lys Pro  
 165 170 175  
 Gly Lys Lys Asp Phe Pro Ala Asp Pro Leu Gly Trp Glu Asn Asn Ser  
 180 185 190  
 Phe Lys Pro Gly Glu Tyr Ser Lys Ile Trp Ile Asp Ser Leu Asp Ile  
 195 200 205  
 Leu Ile Asp Gly Lys Tyr Ala Val Glu Leu Pro Ser Leu Asn Asn Gly  
 210 215 220  
 Thr Ala Ala Ser Val Arg Glu Ser Asp Val Met Pro Ala Asn Gly Gly  
 225 230 235 240  
 Asp Leu Lys Ser Leu Pro Phe Ser Gly Lys Arg Ile Leu Ala Ile Gly  
 245 250 255  
 Glu Ser Val His Gly Thr Gly Thr Met Asn Asp Met Gly Val Glu Ile  
 260 265 270  
 Ile Lys Asn Arg Ile Glu His Gly Lys Cys Arg Leu Val Leu Leu Glu  
 275 280 285  
 Ile Pro Leu Thr Leu Ser Phe His Ile Asn Arg Tyr Leu Glu Gly Asp  
 290 295 300  
 Glu Arg Phe Lys Pro Asp Ser Ile Ala Ser Tyr Phe Asp Lys Val Leu  
 305 310 315 320  
 Phe Ser Ser Ser Ser Phe Val Ser Leu Met Arg Trp Val Lys Glu Tyr  
 325 330 335  
 Asn Arg His Leu Glu Glu Lys Val Ser Phe Phe Gly Ile Asp Arg Asn  
 340 345 350

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Ile Tyr Arg Leu Gln Ser Ser Ile Asp Leu Phe Tyr Phe Phe Tyr Thr  
 355 360 365  
 Leu Arg Arg Gly Lys Gly Asp Glu Gly Leu Lys Ala Ile Cys Glu Ser  
 370 375 380  
 Leu Leu Leu Ser Asp Glu Lys Phe Pro Phe Lys Gly Ala Asp Ser Val  
 385 390 395 400  
 Leu His Ala Asn His Gly Phe Lys Gly Ile Leu Thr Arg Arg Glu Ala  
 405 410 415  
 Glu Ile Met Ser Tyr Cys Leu Asn Ser Glu Glu Glu Ala Thr Ala Asp  
 420 425 430  
 Glu Leu Asn Arg Phe Arg Gly Arg Asp Ser Gly Met Tyr Glu Asn Ala  
 435 440 445  
 Lys Phe Leu Met Lys Thr Met Leu Lys Lys Asp Glu Thr Thr Thr Val  
 450 455 460  
 Tyr Cys His Leu Gly His Ala Asn Tyr Thr Ser Ile Ala Gly Trp Leu  
 465 470 475 480  
 Arg Pro Asp Met Arg Pro Phe Gly Glu Tyr Met Lys Gly Ser Tyr Gly  
 485 490 495  
 Asp Asp Tyr Ser Ala Val Gly Leu Leu Ala Gly Gly Gly Ser Tyr Leu  
 500 505 510  
 Thr Trp Val Phe Pro Gly Lys Met Gly Ile Arg Arg Leu Gln Ser Ser  
 515 520 525  
 Ser Ser Ala Gly Leu Glu Tyr Cys Ile Glu Arg Ser Gly Ile Ser Pro  
 530 535 540  
 Cys Tyr Leu Pro Met Asp Lys Leu Ser Asp Ala Asp Val Leu Lys Met  
 545 550 555 560  
 Arg Tyr Ile Gly Asn Thr Glu Ser Lys Ile Gly Gln Phe Gln Trp Val  
 565 570 575  
 Phe Pro Lys Cys Met Met Asp Gly Val Leu Phe Thr Lys Asn Ala Ser  
 580 585 590  
 Ala Thr Asn Lys Arg Glu Glu Phe Phe Lys Met Asn Leu Asp Tyr His  
 595 600 605  
 Val Gln Thr Leu Phe Ala Leu Met Tyr Leu Tyr Glu Lys Lys Arg Lys  
 610 615 620  
 Trp Ile Pro  
 625

&lt;210&gt; 5748

&lt;211&gt; 374

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5748

Tyr Lys Lys Asp Tyr Asn Ile Met Ala Leu Gln Cys Gly Ile Val Gly  
 1 5 10 15  
 Leu Pro Asn Val Gly Lys Ser Thr Leu Phe Asn Cys Leu Ser Asn Ala  
 20 25 30  
 Lys Ala Gln Ala Ala Asn Phe Pro Phe Cys Thr Ile Glu Pro Asn Val  
 35 40 45  
 Gly Val Ile Thr Val Pro Asp Glu Arg Leu Asn Lys Leu Ala Glu Leu  
 50 55 60  
 Val His Pro Asn Arg Ile Val Pro Thr Thr Val Glu Ile Val Asp Ile  
 65 70 75 80  
 Ala Gly Leu Val Lys Gly Ala Ser Lys Gly Glu Gly Leu Gly Asn Lys  
 85 90 95  
 Phe Leu Ala Asn Ile Arg Glu Thr Asp Ala Ile Ile His Val Leu Arg  
 100 105 110  
 Cys Phe Asp Asp Asp Asn Val Thr His Val Asp Gly Ser Val Asn Pro  
 115 120 125

Val Arg Asp Lys Glu Ile Ile Asp Tyr Glu Leu Gln Leu Lys Asp Leu  
 130 135 140  
 Glu Thr Ile Glu Ser Arg Ile Gln Lys Val Gln Lys Gln Ala Gln Thr  
 145 150 155 160  
 Gly Gly Asp Lys Ala Ala Lys Gln Ala Tyr Asp Val Leu Val Gln Phe  
 165 170 175  
 Lys Asp Ala Leu Glu Gln Gly Lys Ser Ala Arg Thr Val Thr Phe Glu  
 180 185 190  
 Thr Lys Asp Glu Gln Lys Ile Ala Lys Glu Leu Phe Leu Leu Thr Ser  
 195 200 205  
 Lys Pro Val Met Tyr Val Cys Asn Val Asp Glu Ala Ser Ala Val Asn  
 210 215 220  
 Gly Asn Lys Tyr Val Asp Met Val Arg Glu Ala Val Lys Asp Glu Asp  
 225 230 235 240  
 Ala Glu Ile Leu Val Val Ala Gly Lys Thr Glu Ala Asp Ile Ala Glu  
 245 250 255  
 Leu Glu Thr Tyr Glu Asp Arg Gln Met Phe Leu Ala Glu Ile Gly Leu  
 260 265 270  
 Glu Glu Ser Gly Val Ala Arg Leu Ile Lys Ser Ala Tyr Lys Leu Leu  
 275 280 285  
 Asn Leu Glu Thr Tyr Phe Thr Ala Gly Val Gln Glu Val Arg Ala Trp  
 290 295 300  
 Thr Tyr Glu Lys Gly Trp Lys Ala Pro Gln Cys Ala Gly Val Ile His  
 305 310 315 320  
 Thr Asp Phe Glu Lys Gly Phe Ile Arg Ala Glu Val Ile Lys Tyr Glu  
 325 330 335  
 Asp Phe Leu Gln Tyr Gly Ser Glu Ala Ala Val Lys Glu Ala Gly Lys  
 340 345 350  
 Leu Gly Val Glu Gly Lys Glu Tyr Val Val Gln Asp Gly Asp Ile Met  
 355 360 365  
 His Phe Arg Phe Asn Val  
 370

&lt;210&gt; 5749

&lt;211&gt; 735

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5749

Asn Gln Lys Glu Lys Asn Lys Asn Met Leu Leu His Arg Phe Pro Val  
 1 5 10 15  
 Glu Tyr Gln Met Asp Ser Gln Asp Cys Gly Pro Ala Ser Leu Lys Ile  
 20 25 30  
 Ile Ala Lys His Phe Gly Lys Phe Tyr Ser Leu Gln Phe Met Arg Asp  
 35 40 45  
 Arg Cys Gly Ile Thr Lys Glu Gly Val Ser Leu Leu Asp Leu Ser Thr  
 50 55 60  
 Gly Ala Glu Ser Ile Gly Leu Arg Thr Leu Ala Ile Lys Cys Thr Ile  
 65 70 75 80  
 Asp Asp Val Val Asn Ser Ile Pro Phe Pro Ala Ile Val Phe Trp Asn  
 85 90 95  
 Asp Ser His Phe Ile Val Val Tyr His Ser Asp Arg Lys Tyr Ile Trp  
 100 105 110  
 Val Ser Asp Pro Ala Lys Gly Arg Ile Lys Tyr Thr His Glu Glu Phe  
 115 120 125  
 Arg Lys Gly Trp Tyr Gln Arg Asp Glu Ser Gln Gly Val Leu Leu Ala  
 130 135 140  
 Val Glu Pro Thr Thr Asp Phe Lys Asn Ser Lys Ala Glu Gln Glu Gln  
 145 150 155 160

Lys Arg Asn Ser Phe Ser Ser Ile Leu Lys Tyr Phe Phe Pro Tyr Lys  
 165 170 175  
 Lys Ser Phe Gly Leu Ile Phe Ile Ile Met Leu Val Val Thr Val Leu  
 180 185 190  
 Gln Gly Met Leu Pro Phe Ile Ser Lys Ala Val Ile Asp Val Gly Ile  
 195 200 205  
 Lys Thr Ser Asp Arg Asn Phe Ile Asn Met Val Leu Ile Gly Asn Ile  
 210 215 220  
 Cys Ile Leu Leu Ser Val Met Ile Phe Asn Val Leu Arg Asp Trp Ile  
 225 230 235 240  
 Leu Leu His Ile Thr Ala Arg Val Asn Ile Ala Leu Ile Ser Asp Tyr  
 245 250 255  
 Leu Ile Lys Leu Met Lys Leu Pro Val Thr Phe Phe Glu Asn Lys Leu  
 260 265 270  
 Leu Gly Asp Ile Leu Gln Arg Ala Gln Asp His Glu Arg Ile Arg Ser  
 275 280 285  
 Phe Ile Met Asn Asn Ser Leu Ala Leu Ile Phe Ser Thr Leu Thr Phe  
 290 295 300  
 Ala Val Phe Ser Ile Ile Leu Leu Ile Tyr Asn Thr Ile Ile Phe Tyr  
 305 310 315 320  
 Ile Phe Leu Ser Gly Ser Val Leu Tyr Ala Cys Trp Val Leu Leu Phe  
 325 330 335  
 Leu Ser Ile Arg Lys Lys Leu Asp Trp Glu Tyr Phe Glu Leu Leu Ser  
 340 345 350  
 Lys Asn Gln Ser Tyr Trp Val Glu Thr Val Ser Thr Ile Gln Asp Ile  
 355 360 365  
 Lys Ile Tyr Asn Tyr Asp Lys Tyr Arg Arg Trp Lys Trp Glu Glu Ile  
 370 375 380  
 Gln Ala Arg Leu Tyr His Val Asn Lys Arg Val Leu Ala Ile Thr Asn  
 385 390 395 400  
 Ala Gln Asn Leu Gly Ala Gln Phe Ile Glu Asn Ile Lys Asn Met Ala  
 405 410 415  
 Ile Val Phe Phe Cys Ala Met Ala Val Ile Lys Gly Glu Ile Thr Phe  
 420 425 430  
 Gly Ile Met Ile Ser Thr Gln Phe Ile Ile Gly Met Leu Asn Gly Pro  
 435 440 445  
 Leu Val Gln Phe Ile Asn Phe Val Val Ser Ala Gln Tyr Ala Lys Ile  
 450 455 460  
 Ser Phe Leu Arg Ile Asn Glu Ile Arg Gln Leu Glu Asn Glu Asp Glu  
 465 470 475 480  
 Leu Leu Ser Ile Gly Ser Thr Thr Ile Leu Pro Glu Arg Lys Thr Ile  
 485 490 495  
 Leu Leu Glu Asn Ile His Phe Gln Tyr Thr Pro Asn Ser Pro Leu Val  
 500 505 510  
 Leu Arg Asn Ile Tyr Leu Gln Ile Pro Glu Asn Lys Ile Thr Ala Ile  
 515 520 525  
 Val Gly Gly Ser Gly Ser Gly Lys Ser Thr Leu Leu Lys Leu Leu Val  
 530 535 540  
 Arg Leu Tyr Lys Pro Ser His Gly Glu Ile Lys Met Asp Lys Met Asn  
 545 550 555 560  
 Val Ser Ala Ile Asn Leu Arg Gln Trp Arg Asn Met Cys Gly Val Val  
 565 570 575  
 Met Gln Asp Gly Lys Ile Phe Ser Asp Thr Ile Leu Asn Asn Ile Val  
 580 585 590  
 Leu Asp Asp Glu Gln Ile Asn Tyr Thr Arg Leu Arg Glu Val Cys Arg  
 595 600 605  
 Ile Ala Gln Ile Glu Asp Glu Ile Asn Ala Met Pro Lys Gly Phe Glu  
 610 615 620  
 Thr Thr Ile Gly Glu Thr Gly Arg Gly Leu Ser Gly Gly Gln Lys Gln

625		630		635		640									
Arg	Leu	Leu	Ile	Ala	Arg	Ala	Leu	Tyr	Arg	Asp	Pro	Lys	Phe	Leu	Phe
				645					650					655	
Met	Asp	Glu	Ala	Thr	Asn	Ser	Leu	Asp	Ser	Ile	Asn	Glu	Arg	Lys	Ile
			660					665						670	
Val	Asn	Ala	Leu	Asn	Asn	Ala	Phe	Glu	Gln	Arg	Thr	Val	Val	Val	Ile
		675					680					685			
Ala	His	Arg	Leu	Ser	Thr	Ile	Arg	Asn	Ala	Asp	Gln	Ile	Val	Val	Leu
	690					695				700					
Asp	Lys	Gly	Phe	Ile	Val	Glu	Thr	Gly	Thr	His	Glu	Ile	Leu	Met	Glu
705					710					715				720	
Lys	Lys	Gly	His	Tyr	Phe	Glu	Leu	Val	Ser	Ser	Gln	Ile	Gln	Asp	
			725						730					735	

&lt;210&gt; 5750

&lt;211&gt; 397

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;220&gt;

&lt;221&gt; UNSURE

&lt;222&gt; (44)

&lt;223&gt; Identity of amino acid sequences at the above locations are unknown.

&lt;400&gt; 5750

Leu	Pro	Leu	Leu	Arg	Leu	Ala	Arg	Pro	Asp	Ala	Asp	Glu	Pro	Phe	Arg
1				5					10					15	
Thr	Glu	Val	Trp	Tyr	Lys	Gly	Thr	Ile	Glu	His	Asp	Thr	Leu	Arg	Gly
			20					25				30			
Asp	Ile	Tyr	Val	Val	Gly	Gly	Phe	Asp	Pro	Glu	Xaa	Asp	Asp	Glu	Arg
		35				40				45					
Met	Asn	Ala	Leu	Val	Glu	Glu	Val	Ile	Thr	Phe	Pro	Phe	Ser	Val	Leu
	50				55				60						
Lys	Gly	Asn	Ile	Tyr	Gly	Asp	Ile	Ser	Met	Lys	Asp	Ser	Leu	Tyr	Trp
65				70				75						80	
Gly	Ser	Gly	Trp	Ala	Trp	Asp	Asp	Thr	Pro	Ser	Ser	Phe	Gln	Pro	Tyr
			85					90						95	
Leu	Ser	Pro	Leu	Met	Tyr	His	Lys	Gly	Met	Val	Lys	Val	Thr	Ala	Val
		100						105					110		
Pro	Gly	Ala	Thr	Arg	Gly	Asp	Ser	Ala	Arg	Leu	Ser	Phe	Glu	Pro	Ser
		115				120						125			
Ser	Ser	Tyr	Tyr	Thr	Met	Thr	Asn	Glu	Thr	Lys	Thr	Arg	Thr	Ser	Ser
	130				135						140				
Ala	Gly	Lys	Phe	Ser	Val	Ser	Arg	Gly	Trp	Leu	Glu	Asn	Lys	Asn	Asn
145					150					155				160	
Leu	Ile	Val	Ser	Gly	Asn	Val	Glu	Asn	Arg	Arg	Ile	Gly	Asp	Val	Asn
			165					170					175		
Val	Tyr	Ser	Ser	Gln	Asp	Phe	Phe	Met	His	Thr	Phe	Val	Glu	Arg	Leu
		180						185					190		
Arg	Asn	Lys	Gly	Ile	Glu	Ile	Ser	Asn	His	Tyr	Ala	Phe	Asp	Ser	Phe
	195						200					205			
Arg	Ser	Asp	Ser	Leu	Ser	Ile	Cys	Met	Ala	Arg	Trp	Glu	Cys	Pro	Val
	210					215					220				
Gln	Asp	Val	Ile	Asp	Gln	Ile	Met	Lys	Glu	Ser	Asp	Asn	Leu	Ser	Ala
225					230					235				240	
Glu	Ala	Leu	Leu	Cys	Arg	Leu	Gly	Ala	Arg	Ala	Thr	Gly	Lys	Lys	Gln
			245					250					255		
Val	Ser	Ala	Lys	Asp	Gly	Ile	Glu	Glu	Ile	Tyr	Arg	Leu	Ile	Gln	Asp
			260					265					270		

Leu Gly His Asp Pro Asp Asn Tyr Lys Ile Ala Asp Gly Cys Gly Leu  
 275 280 285  
 Ser Asn Tyr Asp Tyr Leu Ser Pro Ala Leu Leu Val Asp Phe Leu Lys  
 290 295 300  
 Phe Ala Tyr Ser Arg Thr Asp Ile Phe Arg Lys Leu Tyr Lys Ala Leu  
 305 310 315 320  
 Pro Val Ala Gly Ile Asp Gly Thr Leu Lys Asn Arg Met Lys Gln Gly  
 325 330 335  
 Ala Ala Phe Lys Asn Val His Ala Lys Thr Gly Ser Tyr Thr Ala Ile  
 340 345 350  
 Asn Thr Leu Ala Gly Tyr Leu Lys Met Ala Asn Gly His Gln Val Ala  
 355 360 365  
 Phe Ala Ile Met Asn Gln Asn Ile Leu Ser Ala Ala Lys Ala Arg Asn  
 370 375 380  
 Phe Gln Asn Lys Val Cys Glu Ile Leu Ala Asn His Gln  
 385 390 395

&lt;210&gt; 5751

&lt;211&gt; 527

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5751

Thr Leu Lys Leu Met Val Lys Lys Phe Asp Phe Leu Val Ile Gly Ser  
 1 5 10 15  
 Gly Ile Ala Gly Met Ser Phe Ala Leu Lys Val Ala His Lys Gly Lys  
 20 25 30  
 Val Ala Leu Val Cys Lys Ser Gly Leu Glu Glu Ala Asn Thr Tyr Phe  
 35 40 45  
 Ala Gln Gly Gly Val Ala Ser Val Thr Asn Leu Leu Val Asp Asn Phe  
 50 55 60  
 Glu Lys His Ile Glu Asp Thr Met Ile Ala Gly Asp Trp Ile Ser Asp  
 65 70 75 80  
 Arg Thr Ala Val Glu Lys Val Val Arg Glu Ala Pro Ala Gln Ile Gln  
 85 90 95  
 Glu Leu Ile Ser Trp Gly Val Asn Phe Asp Lys Asn Glu Lys Gly Glu  
 100 105 110  
 Phe Asp Leu His Arg Glu Gly Gly His Ser Glu Phe Arg Ile Leu His  
 115 120 125  
 His Lys Asp Asn Thr Gly Ala Glu Ile Gln Asp Ser Leu Ile Arg Ala  
 130 135 140  
 Val Gln Gln His Pro Asn Ile Thr Val Ile Glu Asn His Phe Ala Ile  
 145 150 155 160  
 Glu Ile Leu Thr Gln His His Leu Gly Val Thr Val Thr Arg Gln Thr  
 165 170 175  
 Pro Asp Ile Lys Cys Tyr Gly Ala Tyr Ile Leu Asp Pro Lys Thr Gly  
 180 185 190  
 Lys Val Asp Thr Tyr Leu Ala Lys Val Thr Leu Met Ala Thr Gly Gly  
 195 200 205  
 Val Gly Ala Val Tyr Gln Thr Thr Thr Asn Pro Leu Val Ala Thr Gly  
 210 215 220  
 Asp Gly Ile Ala Met Val Tyr Arg Ala Lys Gly Thr Val Lys Asp Met  
 225 230 235 240  
 Glu Phe Val Gln Phe His Pro Thr Ala Leu Tyr His Pro Gly Asp Arg  
 245 250 255  
 Pro Ser Phe Leu Ile Thr Glu Ala Met Arg Gly Tyr Gly Gly Val Leu  
 260 265 270  
 Arg Thr Met Asp Gly Lys Glu Phe Met Gln Lys Tyr Asp Pro Arg Leu  
 275 280 285

Ser Leu Ala Pro Arg Asp Ile Val Ala Arg Ala Ile Asp Asn Glu Met  
 290 295 300  
 Lys Asn Arg Gly Asp Asp His Val Tyr Leu Asp Val Thr His Lys Asp  
 305 310 315 320  
 Pro Glu Glu Thr Lys Lys His Phe Pro Asn Ile Tyr Glu Lys Cys Leu  
 325 330 335  
 Ser Leu Gly Ile Asp Ile Thr Arg Glu Tyr Ile Pro Val Ala Pro Ser  
 340 345 350  
 Ala His Tyr Leu Cys Gly Gly Ile Lys Val Asp Leu Asn Gly Gln Ser  
 355 360 365  
 Ser Ile Glu Arg Leu Tyr Ala Ala Gly Glu Cys Ser Cys Thr Gly Leu  
 370 375 380  
 His Gly Gly Asn Arg Leu Ala Ser Asn Ser Leu Ile Glu Ala Val Val  
 385 390 395 400  
 Tyr Ala Asp Ala Ala Ala Arg His Cys Leu Ser Val Ile Asp Gln Tyr  
 405 410 415  
 Thr Tyr Asn Glu Glu Ile Pro Glu Trp Asn Asp Glu Gly Thr Arg Ser  
 420 425 430  
 Pro Glu Glu Met Val Leu Ile Thr Gln Ser Met Lys Glu Val Asn Gln  
 435 440 445  
 Ile Met Ser Thr Tyr Val Gly Ile Val Arg Ser Asp Leu Arg Leu Lys  
 450 455 460  
 Arg Ala Trp Asp Arg Leu Asp Ile Leu Tyr Glu Glu Thr Glu Ser Leu  
 465 470 475 480  
 Phe Lys Arg Ser Val Ala Ser Lys Glu Ile Cys Glu Leu Arg Asn Met  
 485 490 495  
 Ile Asn Val Gly Tyr Leu Ile Met Arg Met Ala Met Glu Arg Lys Glu  
 500 505 510  
 Ser Arg Gly Leu His Tyr Thr Val Asp Tyr Pro His Ala Gly Lys  
 515 520 525

&lt;210&gt; 5752

&lt;211&gt; 261

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5752

Thr Glu Leu Ser Met Thr Ile Ile Phe Pro Ser Pro Ile Phe Gly Pro  
 1 5 10 15  
 Val His Ser Arg Arg Leu Gly Val Ser Leu Gly Ile Asn Leu Leu Pro  
 20 25 30  
 Ser Asp Gly Lys Val Cys Ser Phe Asp Cys Ile Tyr Cys Glu Cys Gly  
 35 40 45  
 Tyr Asn Gly Glu His Arg Pro Lys Ser Ser Leu Pro Thr Arg Glu Glu  
 50 55 60  
 Val Arg Met Ala Leu Glu Glu Lys Leu Lys Glu Met Lys Ser Asn Gly  
 65 70 75 80  
 Pro Ala Pro Asp Val Leu Thr Phe Ala Gly Asn Gly Glu Pro Thr Ala  
 85 90 95  
 His Pro His Phe Pro Glu Ile Ile Glu Asp Thr Leu Ala Leu Arg Asp  
 100 105 110  
 Ala Tyr Phe Pro Asp Ala Lys Val Ser Val Leu Ser Asn Ala Thr Phe  
 115 120 125  
 Ile Asn Arg Pro Ala Val Phe Asp Ala Leu Asn Arg Val Asp Asn Asn  
 130 135 140  
 Ile Leu Lys Leu Asp Thr Val Asp Glu Glu Tyr Ile Arg Thr Val Asp  
 145 150 155 160  
 Arg Pro Asn Gly Arg Tyr Asp Leu Asn Gly Thr Val Gly Leu Leu Lys  
 165 170 175

Ala	Phe	Lys	Gly	Asn	Cys	Ile	Val	Gln	Thr	Met	Phe	Met	Lys	Gly	Lys
			180					185					190		
Tyr	Lys	Gly	Lys	Asp	Val	Asp	Asn	Thr	Ser	Asp	Lys	Tyr	Val	Leu	Pro
		195					200					205			
Trp	Leu	Lys	Val	Val	Lys	Asp	Ile	Ala	Pro	Arg	Gln	Val	Met	Ile	Tyr
	210					215					220				
Thr	Ile	Asp	Arg	Glu	Thr	Pro	Asp	Gln	Asp	Leu	Gln	Lys	Ala	Thr	His
225					230					235					240
Glu	Glu	Leu	Asp	Arg	Ile	Val	Ala	Leu	Leu	Thr	Lys	Glu	Gly	Leu	Ser
			245						250					255	
Ala	Thr	Ala	Ser	Tyr											
			260												

&lt;210&gt; 5753

&lt;211&gt; 892

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5753

Val	Asp	Leu	Arg	Glu	Thr	Ala	Ile	Phe	Ala	Leu	Leu	Phe	Met	Asn	Leu
1				5					10					15	
Lys	Arg	Arg	Leu	Ser	Val	Ser	Asn	Asp	Ile	Glu	Leu	Thr	Pro	Met	Met
			20					25					30		
Lys	Gln	Phe	Leu	Asp	Leu	Lys	Ala	Lys	His	Pro	Asp	Ala	Val	Met	Leu
		35					40					45			
Phe	Arg	Cys	Gly	Asp	Phe	Tyr	Glu	Thr	Tyr	Ser	Thr	Asp	Ala	Ile	Ile
	50					55					60				
Ala	Ala	Glu	Ile	Leu	Gly	Ile	Thr	Leu	Thr	Lys	Arg	Ala	Asn	Gly	Lys
65					70					75					80
Gly	Lys	Thr	Val	Glu	Met	Ala	Gly	Phe	Pro	His	His	Ala	Leu	Asp	Thr
				85					90					95	
Tyr	Leu	Pro	Lys	Leu	Ile	Arg	Ala	Gly	Lys	Arg	Val	Ala	Ile	Cys	Asp
			100					105					110		
Gln	Leu	Glu	Asp	Pro	Lys	Thr	Thr	Lys	Lys	Leu	Val	Lys	Arg	Gly	Ile
		115					120					125			
Thr	Glu	Leu	Val	Thr	Pro	Gly	Val	Ser	Ile	Asn	Asp	Asn	Val	Leu	Asn
	130					135						140			
Tyr	Lys	Glu	Asn	Asn	Phe	Leu	Ala	Ala	Val	His	Phe	Gly	Lys	Ser	Ala
145					150					155					160
Cys	Gly	Ile	Ala	Phe	Leu	Asp	Ile	Ser	Thr	Gly	Glu	Phe	Leu	Thr	Ala
				165					170					175	
Glu	Gly	Pro	Phe	Asp	Tyr	Val	Asp	Lys	Leu	Leu	Asn	Asn	Phe	Ala	Pro
			180					185					190		
Lys	Glu	Ile	Leu	Phe	Glu	Arg	Gly	Lys	Arg	Gly	Met	Phe	Glu	Gly	Asn
		195					200					205			
Phe	Gly	Ser	Lys	Phe	Phe	Thr	Phe	Glu	Leu	Asp	Asp	Trp	Val	Phe	Thr
	210					215					220				
Glu	Ser	Ser	Ser	Arg	Glu	Lys	Leu	Leu	Lys	His	Phe	Glu	Thr	Lys	Asn
225					230					235					240
Leu	Lys	Gly	Phe	Gly	Val	Glu	His	Leu	Lys	Asn	Gly	Ile	Ile	Ala	Ser
				245					250					255	
Gly	Ala	Ile	Leu	Gln	Tyr	Leu	Asp	Met	Thr	Glu	His	Thr	Gln	Val	Gly
			260					265					270		
His	Ile	Thr	Ser	Leu	Ala	Arg	Ile	Glu	Glu	Asp	Lys	Tyr	Val	Arg	Leu
		275					280					285			
Asp	Lys	Phe	Thr	Val	Arg	Ser	Leu	Glu	Leu	Ile	Gly	Ser	Met	Asn	Asp
	290					295					300				
Gly	Gly	Ser	Ser	Leu	Leu	His	Val	Ile	Asp	Lys	Thr	Ile	Ser	Pro	Met
305					310					315					320



Gly Ala Arg Leu Leu Lys Arg Trp Met Val Phe Pro Leu Lys Asp Glu  
 325 330 335  
 Lys Pro Ile Asn Asp Arg Leu Asn Val Val Glu Tyr Phe Phe Arg Lys  
 340 345 350  
 Pro Asp Phe Arg Glu Leu Ile Glu Asp Glu Leu His Arg Ile Gly Asp  
 355 360 365  
 Leu Glu Arg Ile Ile Ser Lys Val Ala Val Gly Arg Val Ser Pro Arg  
 370 375 380  
 Glu Val Val Gln Leu Lys Val Ala Leu Gln Ala Ile Glu Pro Ile Lys  
 385 390 395 400  
 Glu Ala Cys Gln Gln Ala Asp Asn Pro Ser Leu Asn Arg Ile Gly Glu  
 405 410 415  
 Gln Leu Asn Leu Cys Ile Ser Ile Arg Asp Arg Ile Glu Lys Glu Ile  
 420 425 430  
 Asn Asn Asp Pro Pro Leu Leu Ile Asn Lys Gly Gly Val Ile Lys Asp  
 435 440 445  
 Gly Val Asp Thr Glu Leu Asp Glu Leu Arg Gln Ile Ala Tyr Ser Gly  
 450 455 460  
 Lys Asp Tyr Leu Leu Lys Ile Gln Gln Arg Glu Ser Glu Leu Thr Gly  
 465 470 475 480  
 Ile Pro Ser Leu Lys Ile Ala Tyr Asn Ser Val Phe Gly Tyr Tyr Ile  
 485 490 495  
 Glu Val Arg Asn Val His Lys Asp Lys Val Pro Gln Glu Trp Ile Arg  
 500 505 510  
 Lys Gln Thr Leu Val Asn Ala Glu Arg Tyr Ile Thr Gln Glu Leu Lys  
 515 520 525  
 Glu Tyr Glu Glu Lys Ile Leu Gly Ala Glu Asp Lys Ile Leu Val Leu  
 530 535 540  
 Glu Thr Arg Leu Tyr Thr Glu Leu Val Gln Ala Leu Ser Glu Phe Ile  
 545 550 555 560  
 Pro Ala Ile Gln Ile Asn Ala Asn Gln Ile Ala Arg Ile Asp Cys Leu  
 565 570 575  
 Leu Ser Phe Ala Asn Val Ala Lys Glu Asn Asn Tyr Ile Arg Pro Val  
 580 585 590  
 Ile Glu Asp Asn Asp Val Leu Asp Ile Arg Gln Gly Arg His Pro Val  
 595 600 605  
 Ile Glu Lys Gln Leu Pro Ile Gly Glu Lys Tyr Ile Ala Asn Asp Val  
 610 615 620  
 Leu Leu Asp Asn Ala Thr Gln Gln Val Ile Ile Thr Gly Pro Asn  
 625 630 635 640  
 Met Ala Gly Lys Ser Ala Leu Leu Arg Gln Thr Ala Leu Ile Thr Leu  
 645 650 655  
 Leu Ala Gln Ile Gly Ser Phe Val Pro Ala Glu Ser Ala His Ile Gly  
 660 665 670  
 Leu Val Asp Lys Ile Phe Thr Arg Val Gly Ala Ser Asp Asn Ile Ser  
 675 680 685  
 Val Gly Glu Ser Thr Phe Met Val Glu Met Asn Glu Ala Ser Asp Ile  
 690 695 700  
 Leu Asn Asn Ile Ser Ser Arg Ser Leu Val Leu Phe Asp Glu Leu Gly  
 705 710 715 720  
 Arg Gly Thr Ser Thr Tyr Asp Gly Ile Ser Ile Ala Trp Ala Ile Val  
 725 730 735  
 Glu Tyr Ile His Glu His Pro Lys Ala Lys Ala Arg Thr Leu Phe Ala  
 740 745 750  
 Thr His Tyr His Glu Leu Asn Glu Met Glu Lys Ser Phe Lys Arg Ile  
 755 760 765  
 Lys Asn Tyr Asn Val Ser Val Lys Glu Val Asp Asn Lys Val Ile Phe  
 770 775 780  
 Leu Arg Lys Leu Glu Arg Gly Gly Ser Glu His Ser Phe Gly Ile His

785		790		795		800									
Val	Ala	Lys	Met	Ala	Gly	Met	Pro	Lys	Ser	Ile	Val	Lys	Arg	Ala	Asn
			805						810					815	
Glu	Ile	Leu	Lys	Gln	Leu	Glu	Ser	Asp	Asn	Arg	Gln	Gln	Gly	Ile	Ser
			820						825					830	
Gly	Lys	Pro	Leu	Ala	Glu	Val	Ser	Glu	Asn	Arg	Gly	Gly	Met	Gln	Leu
			835					840					845		
Ser	Phe	Phe	Gln	Leu	Asp	Asp	Pro	Ile	Leu	Cys	Gln	Ile	Arg	Asp	Glu
			850				855					860			
Ile	Leu	His	Leu	Asp	Val	Asn	Asn	Leu	Thr	Pro	Ile	Glu	Ala	Leu	Asn
			865			870				875					880
Lys	Leu	Asn	Asp	Ile	Lys	Lys	Ile	Val	Arg	Gly	Lys				
				885					890						

&lt;210&gt; 5754

&lt;211&gt; 599

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5754

Val	Val	Asn	Ile	Asp	Asn	Asn	Leu	Val	Tyr	Phe	Met	Lys	Thr	Lys	Leu
1			5						10					15	
Pro	Leu	Leu	Leu	Phe	Phe	Val	Leu	Phe	Leu	Phe	Lys	Cys	Asp	Leu	
			20					25					30		
Lys	Ala	Asp	Pro	Gly	His	Lys	Ser	Pro	Leu	Glu	Tyr	Arg	Trp	Val	Asn
			35				40					45			
His	Pro	Leu	Asp	Phe	Tyr	Leu	Asn	Val	Thr	Val	Asp	Ser	Thr	Thr	Thr
			50				55				60				
Pro	His	Ser	Leu	Leu	Phe	Glu	Thr	Met	Tyr	Glu	Lys	Lys	Gly	Ile	Ala
			65			70				75					80
Ser	Phe	Leu	Leu	Pro	Ile	Tyr	Gln	Leu	Glu	Lys	Asn	Ser	Leu	Thr	Phe
				85					90					95	
Glu	Ile	Lys	Ile	Arg	Tyr	Lys	Thr	Glu	Asn	Cys	Glu	Asn	Leu	Phe	Leu
			100					105					110		
Ala	Ile	Thr	Ser	Val	Gly	Asp	Cys	Glu	Asn	Ile	Asn	Ser	Ile	Asp	Thr
			115				120					125			
Ile	Gln	Leu	Asn	Ala	Thr	Gln	Asp	Trp	Lys	Glu	Cys	Thr	Arg	Ile	Leu
			130				135					140			
Lys	Thr	Lys	Lys	Ala	Tyr	Phe	Leu	Asn	Ile	Ser	Val	Gly	Ala	Val	Gly
				145		150				155					160
Tyr	Gly	Gln	Arg	Lys	Gly	Lys	Ile	Trp	Ile	Ser	Asp	Leu	Glu	Val	Leu
				165					170					175	
Gly	Asp	Gly	Lys	Ala	Ile	Gly	Asp	Asn	Pro	Gln	Gln	Glu	Tyr	Lys	Lys
			180					185					190		
Glu	Asp	Ile	His	Leu	Lys	Ala	Thr	Asp	Leu	Ile	His	Trp	Asn	Asn	Lys
			195				200					205			
Glu	Tyr	Asp	Asn	Leu	Pro	Phe	Leu	Asn	Lys	Lys	Ile	Leu	Gly	Leu	Gly
			210				215					220			
Glu	Thr	Ala	His	Gly	Thr	Glu	Thr	Met	Asn	Asp	Ile	Gly	Ile	Glu	Ile
			225			230				235					240
Ser	Lys	Glu	Arg	Ile	Leu	Lys	His	Gln	Cys	Arg	Phe	Ile	Leu	Leu	Glu
				245					250					255	
Ile	Pro	Leu	Glu	Phe	Ser	Leu	Tyr	Ile	Asn	Arg	Tyr	Val	Gln	Asn	Asp
			260					265					270		
Lys	Asn	Phe	Lys	Phe	Glu	Tyr	Ile	Ser	Glu	Arg	Phe	Glu	Pro	Tyr	Leu
			275				280					285			
Phe	Ser	Asp	Ser	Ile	Leu	Ser	Phe	Ile	Arg	Trp	Ile	Lys	Glu	Tyr	Asn
			290			295					300				
Ser	Ala	His	Asn	Gln	Lys	Ile	Ser	Ile	Leu	Gly	Phe	Asp	Leu	Asn	Thr

305					310					315				320
Thr	Pro	Leu	Leu	Ser	Arg	Ala	Asp	Leu	Phe	Asn	Phe	Phe	Tyr	Asn
				325					330					335
Lys	Ser	Gly	Gly	His	Val	Glu	Glu	Ile	Asp	Thr	Ile	Cys	Glu	Ser
			340					345					350	
Leu	Asp	Ser	Lys	Thr	Ser	Phe	Glu	Lys	Ile	Ile	Ser	Lys	Phe	Asp
	355						360				365			
Ser	Ile	Arg	Leu	Ala	Asp	Cys	Leu	Asp	Lys	Gly	Glu	Leu	Lys	Leu
	370					375					380			
His	Arg	Cys	Leu	Glu	Ile	Thr	Gly	Arg	Ser	Ser	Ser	Ser	Tyr	Phe
385					390				395					400
Phe	Val	Glu	Arg	Asp	Arg	Tyr	Met	Asn	Asp	Ile	Val	Thr	Phe	Ile
				405				410						415
Asp	His	Phe	Leu	Asn	Thr	Asn	Glu	Thr	Val	Thr	Leu	Phe	Gly	His
			420				425						430	
Gly	His	Leu	Asn	Tyr	Lys	Gly	Asn	Arg	Val	Glu	Leu	Met	Asp	Tyr
	435					440						445		
Ser	Leu	Gly	Tyr	Tyr	Leu	Lys	Ser	Arg	Tyr	Ala	Lys	Asn	Tyr	Ser
	450					455					460			
Ile	Gly	Leu	Ile	Thr	Asn	Arg	Gly	Thr	Ala	Met	Leu	Pro	Val	Ser
465					470				475					480
Thr	Asn	Gly	Gly	Val	Thr	Lys	Leu	Glu	Gln	Ala	Pro	Gln	Gly	Ser
			485					490						495
Glu	Phe	Gln	Val	Asn	Lys	Leu	Lys	Met	Asp	Ser	Val	Tyr	Leu	Ser
			500					505				510		
Ser	Lys	Phe	Thr	Cys	Ser	Asp	Val	Phe	Leu	Leu	Arg	Glu	Leu	Gly
	515					520						525		
Gly	Phe	Ser	Gln	Asn	Lys	Lys	Ile	Ile	Pro	Asn	Gln	Phe	Gln	Tyr
	530					535					540			
Ile	Pro	Lys	Ser	Arg	Met	Glu	Gly	Val	Ile	Phe	Thr	Lys	Glu	Ser
545					550				555					560
Asn	Phe	Met	Lys	Gly	Lys	Glu	Phe	Phe	Lys	Lys	Asn	Met	Asn	Val
			565					570						575
Val	Val	Thr	Met	Arg	Phe	Tyr	Ile	Lys	Ala	Leu	Glu	Lys	Leu	Thr
			580					585					590	
Lys	Lys	Ile	Asp	Leu	Asn	Ile								
			595											

&lt;210&gt; 5755

&lt;211&gt; 470

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5755

Ser	Ser	Ile	Phe	Ala	Asp	Ala	Asn	Leu	Asn	Ser	Glu	Phe	Met	Asn	Glu
1			5				10						15		
Leu	Thr	Gly	Ala	Asp	Phe	Lys	Ser	Ala	Thr	Ala	Asp	Asp	Asn	Lys	Lys
			20				25						30		
Leu	Phe	Ile	Glu	Thr	Tyr	Gly	Cys	Gln	Met	Asn	Val	Ala	Asp	Ser	Glu
	35					40					45				
Val	Ile	Ala	Ser	Val	Met	Gln	Met	Ala	Gly	Tyr	Ser	Val	Ala	Glu	Thr
	50				55					60					
Leu	Glu	Glu	Ala	Asp	Ala	Val	Phe	Met	Asn	Thr	Cys	Ser	Ile	Arg	Asp
65				70					75					80	
Asn	Ala	Glu	Gln	Lys	Ile	Leu	Asn	Arg	Leu	Glu	Phe	Phe	His	Ser	Met
			85				90						95		
Lys	Lys	Lys	Lys	Lys	His	Leu	Ile	Val	Gly	Val	Leu	Gly	Cys	Met	Ala
			100				105						110		
Glu	Arg	Val	Lys	Asp	Asp	Leu	Ile	Glu	His	His	His	Val	Asp	Leu	Val

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      115              120              125
Val Gly Pro Asp Ala Tyr Leu Thr Leu Pro Glu Leu Ile Ala Ser Val
      130              135              140
Glu Ala Gly Glu Lys Ala Met Asn Val Glu Leu Ser Thr Thr Glu Thr
      145              150              155              160
Tyr Arg Asp Val Ile Pro Ser Arg Ile Cys Gly Asn His Ile Ser Gly
      165              170              175
Phe Val Ser Ile Met Arg Gly Cys Asn Asn Phe Cys Thr Tyr Cys Ile
      180              185              190
Val Pro Tyr Thr Arg Gly Arg Glu Arg Ser Arg Asp Val Glu Ser Ile
      195              200              205
Leu Asn Glu Val Ala Asp Leu Val Ser Lys Gly Tyr Lys Glu Ile Thr
      210              215              220
Leu Leu Gly Gln Asn Val Asn Ser Tyr Arg Phe Glu Lys Glu Gly Gly
      225              230              235              240
Glu Val Val Thr Phe Pro Met Leu Leu Arg Leu Val Ala Glu Ala Ala
      245              250              255
Pro Gly Ile Arg Val Arg Phe Thr Thr Ser His Pro Lys Asp Met Ser
      260              265              270
Asp Glu Thr Leu Glu Val Ile Ala Gln Val Pro Asn Val Cys Lys His
      275              280              285
Ile His Leu Pro Val Gln Ser Gly Ser Ser Arg Ile Leu Lys Leu Met
      290              295              300
Asn Arg Lys Tyr Thr Arg Glu Trp Tyr Leu Asp Arg Val Ala Ala Ile
      305              310              315              320
Lys Arg Ile Val Pro Asp Cys Gly Leu Thr Thr Asp Ile Phe Ser Gly
      325              330              335
Phe His Ser Glu Thr Glu Glu Asp His Arg Glu Ser Leu Ser Leu Met
      340              345              350
Glu Ala Cys Gly Tyr Asp Ala Ala Phe Met Phe Lys Tyr Ser Glu Arg
      355              360              365
Pro Gly Thr Tyr Ala Ser Lys His Leu Glu Asp Asn Val Ser Glu Glu
      370              375              380
Ile Lys Val Arg Arg Leu Asn Glu Ile Ile Ala Leu Gln Asn Arg Leu
      385              390              395              400
Ser Ala Glu Ser Asn Asn Arg Cys Ile Gly Lys Thr Tyr Glu Val Leu
      405              410              415
Val Glu Gly Val Ser Lys Arg Ser Arg Asp Gln Leu Phe Gly Arg Thr
      420              425              430
Glu Gln Asn Arg Val Val Val Phe Asp Arg Gly Thr His Arg Ile Gly
      435              440              445
Asp Phe Val Asn Val Arg Ile Thr Glu Ala Ser Ser Ala Thr Leu Lys
      450              455              460
Gly Glu Glu Val Phe Ser
      465              470

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&lt;210&gt; 5756

&lt;211&gt; 228

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5756

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Lys Asn Ile Ile Arg Ile Met Gly Thr Asn Asn Ser Asp Phe Tyr Leu
1      5      10      15
Pro Val Tyr Val Ile Asn Leu Lys Glu Arg Thr Glu Arg Arg Gln His
      20      25      30
Ile Glu Glu Gln Phe Gln Gly Lys Val Glu Phe Ala Leu His Trp Ile
      35      40      45
Glu Ala Ile Glu His Ser Ile Gly Ala Val Gly Leu Trp Gln Ser Met

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50	55	60
Leu Lys Ala Val Gln Thr	Ala Ile Asp Lys Arg Asp Asp Ile Met Ile	
65	70	75
Ile Cys Glu Asp Asp His Ile Phe Thr	Pro Ala Tyr Asn Lys Asp Tyr	80
	85	90
Leu Phe Ala Asn Ile Ile Gly Ala Asn Ala Gln Gly Ser Glu Leu Leu		95
	100	105
Ser Gly Gly Val Gly Gly Phe Gly Thr Ala Val Pro Val Asp Thr Asn		110
	115	120
Arg Tyr Trp Met Asp Trp Phe Trp Ser Thr Gln Phe Ile Ile Ile Phe		125
	130	135
Lys Pro Leu Phe Gln Lys Ile Leu Asp Tyr Asp Phe Lys Asp Thr Asp		140
145	150	155
Thr Ala Asp Gly Val Leu Ser Val Leu Ala Lys Asp Lys Met Thr Ile		160
	165	170
Tyr Pro Phe Ile Ser Val Gln Lys Asp Phe Gly Tyr Ser Asp Val Thr		175
	180	185
Val Tyr Asn Gly Thr Pro Gly Met Ile Ser Asn Tyr Phe Ser Gln Ala		190
	195	200
Asn Tyr Arg Leu Arg Met Ile His His Val Ser His Lys Phe Lys Glu		205
	210	215
Gln Ala Lys Arg		220
225		

&lt;210&gt; 5757

&lt;211&gt; 238

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5757

Asn Thr Ala Ile Asn Tyr Ser Ser Glu Trp Ala Lys Gln Ser Thr Ile	
1	5
Asn Tyr Tyr Asp Ile Glu Pro Gly Lys Ile His Val Val Glu Phe Gly	10
	15
	20
Ala Asn Ile Pro Thr Pro Ser Asp Tyr Lys Ile Asp Ile Gln Thr Asp	25
	30
	35
Ile Cys Asn Leu Val Phe Ile Gly Lys Asn Trp Gln Lys Lys Gly Gly	40
	45
	50
Asp Lys Val Leu Gly Ala Tyr Arg Lys Leu Lys Ser Asp Gly Phe Arg	55
65	60
	65
Cys Thr Leu Thr Ile Ile Gly Ser Ile Ile Arg Glu Pro Tyr Asp Glu	70
	75
	80
	85
Asp Glu Asn Leu Val Ile Ile Pro Tyr Leu Asp Lys Ser Gln Pro Glu	90
	95
	100
His Leu Glu Arg Phe Cys Asn Ile Leu Gln Glu Ala His Phe Leu Val	105
	110
	115
Leu Pro Thr Glu Phe Asp Ala Phe Gly Ile Val Phe Cys Glu Ala Ser	120
	125
	130
Ala Tyr Ala Val Pro Ser Ile Ala Ala Asn Val Gly Gly Val Ser Gln	135
145	140
	145
Pro Val Arg Glu Gly Lys Asn Gly Tyr Leu Leu Met Pro Asp Ala Thr	150
	155
	160
	165
Ala Glu Asp Tyr Ala Glu Lys Ile Lys Ser Val Phe Ala Asp Lys Glu	170
	175
	180
Asn Tyr Leu Lys Leu Arg Met Ser Ser Arg Gln Glu Phe Glu Thr Arg	185
	190
	195
Leu Asn Trp Glu Val Trp Ser Glu Lys Val Asn Lys Ile Leu Glu Glu	200
	205
	210
Ile Val Glu Glu His His Lys Asn Asn Gly Asn Lys Gln Gln	215
	220

225

230

235

<210> 5758  
 <211> 94  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5758

Glu	Leu	Arg	Ile	Leu	Val	His	Ala	Gly	Ile	Pro	Ala	Pro	Lys	Thr	Ile
1				5					10					15	
Gln	Phe	Ile	Ser	Gly	Arg	Phe	Leu	Leu	Arg	Ile	Gln	Ala	Val	Ala	His
			20					25					30		
Tyr	Phe	Arg	Phe	Pro	Pro	Gly	Lys	Tyr	Ala	Leu	Glu	Ala	Met	Ile	Gly
		35					40					45			
Met	Gln	His	Arg	Val	Arg	Pro	Phe	Lys	Arg	Glu	Leu	Leu	Val	Arg	Gln
		50				55					60				
Gln	Lys	Arg	Leu	Ala	Tyr	Arg	Phe	Gln	Ala	Phe	Val	Ala	Phe	Thr	Ser
65					70					75					80
Ala	Glu	Arg	Val	Lys	Glu	Val	Lys	Gln	Val	Asp	Thr	Ala	Leu		
				85					90						

<210> 5759  
 <211> 88  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5759

Leu	Val	Ser	Ile	Met	Lys	Lys	Leu	Asn	Leu	Phe	Ile	Leu	Phe	Ser	Phe
1				5					10					15	
Cys	Phe	Ser	Ile	Ile	Thr	Trp	Gly	Gln	Ala	Asn	Phe	Ala	Ala	Ile	Asp
			20					25					30		
Ser	Leu	Ile	Lys	Lys	Glu	Leu	Pro	Gln	Gly	Ser	Glu	Val	Gly	Ile	Ser
			35				40					45			
Val	Tyr	Asp	Leu	Thr	Ala	Arg	Lys	Thr	Leu	Tyr	Thr	Tyr	Arg	Asp	Thr
		50				55					60				
Lys	Leu	Ser	Arg	Pro	Ala	Ser	Thr	Met	Lys	Leu	Leu	Thr	Thr	Ile	Thr
65					70					75					80
Ala	Leu	Gly	Pro	Ala	Gly	Arg	Arg								
				85											

<210> 5760  
 <211> 562  
 <212> PRT  
 <213> B.fragilis

&lt;400&gt; 5760

Lys	Lys	Glu	Met	Lys	Val	Leu	Asp	Phe	Lys	Pro	Arg	Leu	Phe	Ser	Thr
1				5					10					15	
Leu	Lys	Asn	Tyr	Ser	Lys	Glu	Thr	Phe	Met	Ser	Asp	Leu	Met	Ala	Gly
			20					25					30		
Ile	Ile	Val	Gly	Ile	Val	Ala	Leu	Pro	Leu	Ala	Ile	Ala	Phe	Gly	Ile
		35					40					45			
Ala	Ser	Gly	Val	Ser	Pro	Glu	Lys	Gly	Ile	Ile	Thr	Ala	Ile	Ile	Ala
		50				55					60				
Gly	Phe	Ile	Ile	Ser	Leu	Gly	Gly	Ser	Lys	Val	Gln	Ile	Gly	Gly	
65					70				75						80
Pro	Thr	Gly	Ala	Phe	Ile	Val	Ile	Ile	Tyr	Gly	Ile	Ile	Gln	Gln	Tyr
				85					90					95	
Gly	Glu	Ala	Gly	Leu	Ile	Val	Ala	Thr	Leu	Met	Ala	Gly	Ile	Leu	Leu

[illegible]

<210> 5761  
 <211> 810  
 <212> PRT  
 <213> B.fragilis

<400> 5761

Phe	Asn	Ala	Val	Lys	Cys	Met	Lys	Gln	Ile	Tyr	Ser	Thr	Leu	Leu	Leu
1				5				10					15		
Leu	Val	Leu	Leu	Ile	Phe	Pro	Ser	Leu	Leu	Phe	Ala	Thr	Glu	Pro	Glu
		20						25					30		
Ser	Val	Asp	Arg	Val	Pro	Ala	Ile	Arg	Gly	Val	Val	Tyr	Asp	Glu	Thr
		35					40					45			
Asp	Thr	Pro	Leu	Ala	Ser	Ala	Thr	Val	Gln	Ile	Glu	Gly	Thr	Thr	Ile
	50					55					60				
Gly	Thr	Thr	Thr	Asn	Ser	Glu	Gly	Arg	Phe	Ile	Leu	Arg	Asn	Leu	Ala
65				70					75					80	
Arg	Lys	Val	Tyr	Lys	Ile	Asn	Val	Ser	Phe	Val	Gly	Tyr	Ala	Thr	Gln
				85					90					95	
Thr	Arg	Thr	Val	Asp	Leu	Thr	Ser	Arg	Ser	Val	Ala	Gln	Leu	Ser	Phe
			100					105					110		
Thr	Leu	Leu	Pro	Asp	Asp	Asn	Leu	Leu	Ser	Thr	Val	Glu	Val	Phe	Gly
		115						120					125		
Glu	Arg	Tyr	Lys	Gln	Pro	Lys	Lys	Leu	Asp	Ala	Ile	Thr	Arg	Met	Pro
	130					135					140				
Leu	Arg	Pro	Ser	Glu	Gln	Ile	Gln	Ser	Ile	Ser	Val	Ile	Ser	Glu	Lys
145					150					155					160
Ser	Ile	Thr	Glu	Gln	Gly	Ala	Leu	Thr	Val	Thr	Asp	Val	Ala	Arg	Asn
				165					170					175	
Val	Pro	Gly	Val	Thr	Leu	Phe	Gly	Ser	Tyr	Gly	Gly	Val	Arg	Glu	Ser
			180					185					190		
Met	Ser	Ile	Arg	Gly	Tyr	Arg	Gly	Val	Pro	Ile	Leu	Lys	Asn	Gly	Val
		195					200					205			
Arg	Ile	Asp	Ser	Asp	Phe	Arg	Thr	Gly	Ser	Ala	Leu	Ser	Glu	Met	Gln
	210					215					220				
Gly	Val	Glu	Ser	Ile	Gln	Val	Ile	Lys	Gly	Ser	Ala	Ala	Val	Thr	Gln
225					230					235					240
Gly	Ile	Gly	Asn	Asp	Leu	Gly	Ser	Ala	Gly	Gly	Val	Ile	Asn	Val	Val
				245					250					255	
Thr	Lys	Thr	Pro	Lys	Phe	Thr	Asn	Glu	Gly	Glu	Val	Ser	Leu	Arg	Ala
			260					265					270		
Gly	Ser	Trp	Gly	Leu	Phe	Arg	Pro	Thr	Phe	Asp	Val	Gln	Ser	Val	Leu
		275					280					285			
Asp	Lys	Asn	Gln	Thr	Ile	Ala	Phe	Arg	Met	Asn	Gly	Ala	Phe	Glu	Arg
	290					295					300				
Ser	Asp	Asn	Tyr	Arg	Pro	Val	Ile	His	Ser	Asn	Arg	Val	Tyr	Ile	Asn
305					310					315					320
Pro	Ser	Leu	Glu	Trp	Arg	Pro	Asp	Asp	Lys	Thr	Ser	Val	Thr	Ile	Glu
				325					330					335	
Met	Asp	Tyr	Leu	Asn	Asp	Asn	Arg	Thr	Pro	Tyr	Thr	Ser	Ser	Val	Asn
		340						345					350		
Leu	Ser	Lys	Asp	Thr	Glu	Glu	Asn	Leu	Tyr	Asp	Met	Pro	His	Asn	Lys
		355					360					365			
Phe	Leu	Gly	Phe	Lys	Asn	Asp	Asn	Val	Asn	Asn	Lys	Thr	Leu	Thr	Tyr
	370					375					380				
Ala	Ala	Arg	Ile	Thr	Arg	Gln	Leu	Thr	Asp	Asn	Ile	Ser	Val	Arg	Ala
385					390					395					400
Ala	Tyr	Phe	Gly	Ser	Ser	Tyr	Lys	Val	Asp	Asn	Thr	Ser	Thr	Ser	Val
				405					410					415	



Lys Thr Val Val Asn Lys Glu Tyr Asn Met Arg Arg Arg Thr Ile Ser  
 420 425 430  
 Arg Ser Leu Arg Asp Asp Arg Asn Ser Thr Phe Gln Leu Asp Phe Ile  
 435 440 445  
 Gly Arg Asp Ile Phe Thr Gly Pro Val Lys His Thr Phe Gln Leu Gly  
 450 455 460  
 Phe Asp Tyr Lys Asn Thr Asp Leu Ser Ile Thr Asn Tyr Thr Pro Val  
 465 470 475 480  
 Asn Ile Asp Thr Ile Asn Val Leu Ala Pro Ser Ile Ser Asn Val Leu  
 485 490 495  
 Pro Val Ala Val Lys Phe Val Pro Glu Ile Pro Val Glu Ser Asn Ser  
 500 505 510  
 Ser Ser Tyr Gly Ile Met Ala Gln Glu Val Met Thr Phe Asn Lys Tyr  
 515 520 525  
 Ile Lys Ala Ile Leu Gly Leu Arg Tyr Ser Tyr Ile Ser Ser Gln Asp  
 530 535 540  
 Gly Thr Ser Ala Gly Pro Thr Thr Gly Asp Ala Trp Asn Pro Met Leu  
 545 550 555 560  
 Gly Ile Met Leu Thr Pro Val Lys Asn Ile Asn Leu Phe Gly Ser Tyr  
 565 570 575  
 Thr Thr Thr Thr Ser Leu Leu His Ala Ala Arg Arg Met Glu Asn Gly  
 580 585 590  
 Asp Glu Ile Gly Pro Ser Lys Thr Arg Gln Phe Glu Val Gly Ile Lys  
 595 600 605  
 Ser Asp Trp Leu Asn Asn Arg Leu Arg Phe Asn Leu Thr Tyr Phe Asp  
 610 615 620  
 Ile Leu Thr Lys Asn Leu Ser Tyr Ser Thr Tyr His Pro Gly Thr Thr  
 625 630 635 640  
 Gln Pro Thr Gly Tyr Phe Asp Lys Ala Gly Ser Leu Lys Arg Lys Gly  
 645 650 655  
 Ile Glu Thr Glu Leu Ser Gly Ser Ile Leu Glu Asn Leu Gln Val Met  
 660 665 670  
 Met Gly Tyr Ala Tyr Leu Asp Ala Lys Tyr Glu Asn Ser Pro Ala Phe  
 675 680 685  
 Lys Asn Gly Ser Ala Pro Met Asn Thr Pro Lys His Thr Ala Asn Gly  
 690 695 700  
 Trp Ile Gln Tyr Arg Phe Asp Lys Gly Val Leu Lys Arg Leu Ser Ala  
 705 710 715 720  
 Gly Ile Gly Val Tyr Phe Val Gly Lys Arg Pro Val Asn Asp Phe Ala  
 725 730 735  
 Ile Lys Pro Asp Gly His Gly Ser Met Thr Asn Glu Lys Pro Phe Asp  
 740 745 750  
 Met Pro Gly Tyr Thr Thr Ile Asn Ala Gln Leu Ala Tyr Ser Ile His  
 755 760 765  
 Lys Phe Thr Ala Arg Val Tyr Leu Asn Asn Leu Phe Asp Ala Leu Gly  
 770 775 780  
 Tyr Asn Ser Tyr Tyr Arg Gly Gly Tyr Ile Asn Gln Ile Asp Pro Arg  
 785 790 795 800  
 Asn Phe Ser Ala Val Ile Ser Tyr His Phe  
 805 810

&lt;210&gt; 5762

&lt;211&gt; 372

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5762

Thr His Ala Val Met Ser Met Ala Ile Asn Leu Asp Asn Gln Phe Asn  
 1 5 10 15

Leu Pro Ala Asp Tyr Gly Ser Leu Asp Ser Arg Trp Asn Arg Asn Gln  
 20 25 30  
 Val Gly Pro Phe Ile Lys Leu Leu Lys Lys Phe Val Lys Asp Ser Arg  
 35 40 45  
 Phe Asp Ala Phe Tyr His Ser Asn Glu Asn Leu Tyr Gln Glu Ala Val  
 50 55 60  
 Ser Arg Phe Met Pro Ile Tyr Lys Ser Ile Asp Thr Gln Trp Tyr Asn  
 65 70 75 80  
 Asp Phe Tyr Gly Gln Lys Ser Asn Asp Arg Phe His Ile Ile Leu Ser  
 85 90 95  
 Met Ser Asn Gly Pro Gly Asn Tyr Gly Pro Ser Val Thr Asp Lys Glu  
 100 105 110  
 Asn Ile His Asn Val Phe Ser Val Met Gly Ala Trp Val Thr Asp Ser  
 115 120 125  
 Val Gly Met Val Val Tyr Pro Pro Glu Leu Ile Leu Pro Ile Leu Ile  
 130 135 140  
 His Glu Phe Asn His Ser Phe Ile Asn Phe Asp Pro Glu Met Phe Arg  
 145 150 155 160  
 Thr Ser Gly Glu Gln Ile Tyr Ala Ala Val Gly Glu Gln Met Ala Arg  
 165 170 175  
 Gln Ala Tyr Gly Gln Trp Ser Ile Val Leu Thr Glu Ala Met Val Arg  
 180 185 190  
 Ala Ala Val Ile Lys Tyr Met Lys Asp His Asn Phe Pro Ala Val Glu  
 195 200 205  
 Ile Thr Lys Glu Thr Val Ile Gln Lys Thr Arg Gly Phe Val Trp Ile  
 210 215 220  
 Ser Lys Leu Val Asp Glu Leu Glu Lys Tyr Ser Ser Asp Arg Thr Thr  
 225 230 235 240  
 Tyr Pro Thr Leu Asn Ser Tyr Met Pro Arg Leu Ala Glu Ala Tyr Thr  
 245 250 255  
 Gly Phe Ala Gln Tyr Thr Ala Asn Tyr Asp Ser Ile Arg Pro Lys Val  
 260 265 270  
 Val Ser Ile Asp Glu Phe Thr Asn Gly Asp Thr Thr Val Arg Ser Asp  
 275 280 285  
 Ile Lys Thr Ile Thr Val His Phe Asp Arg Pro Leu Val Gly Arg Gly  
 290 295 300  
 His Ser Phe Asn Tyr Gly His Leu Gly Met Glu Ala Met Pro Lys Ile  
 305 310 315 320  
 Ile Asn Val Asn Tyr Ala Asn Asp Asn Arg Thr Val Ile Ile Gly Val  
 325 330 335  
 Glu Leu Leu Pro Gly Lys Glu Tyr Gly Ile Thr Leu Leu Gly Leu Ser  
 340 345 350  
 Phe Arg Thr Pro Glu Gly Asp Ala Ile Lys Pro Tyr Glu Ile Ser Phe  
 355 360 365  
 Lys Thr Ala Glu  
 370

&lt;210&gt; 5763

&lt;211&gt; 373

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5763

Ile Pro Ile Leu Asp Pro Ile Ile Asn Pro Leu His Asn Thr Ile Met  
 1 5 10 15  
 Lys Asn Lys Ser Ala Cys Phe Phe Val Leu Ser Leu Phe Val Cys Ser  
 20 25 30  
 Met Phe Thr Ser Cys Asn Lys Glu Ser Thr Thr Glu Cys Gln Thr Ile  
 35 40 45

Asp Phe Ser Thr Leu Phe Asp Gly Gln Pro Glu Lys Ile Pro Leu Lys  
 50 55 60  
 Glu Trp Ala Lys Ser Ile His Phe Val Gln Leu Glu Thr Asn Asp Ser  
 65 70 75 80  
 Ile Leu Ile Gly Asn Ile Arg Ala Thr Ile Leu His Lys Asp Lys Ile  
 85 90 95  
 Leu Val His His Asn Asn Leu Ser Leu Phe Asp Leu Ser Gly Lys Phe  
 100 105 110  
 Ile Cys Asn Ile Gly Ser Lys Gly Gly Pro Thr Glu Tyr Ser Gly  
 115 120 125  
 Ile Asn Asn Ala Trp Thr Asp Asp Glu Gly Ile His Ile Phe Asp Ile  
 130 135 140  
 Ala Asn Lys Ile Lys Thr Tyr Asn Trp Asn Gly Lys Trp Ile Lys Thr  
 145 150 155 160  
 Glu Pro Ile Pro Glu Ser Asn Ile Lys Glu Val Phe Pro Leu Ala Ser  
 165 170 175  
 Gly Asn Asn Ile Lys Ala Gly Tyr Ile Gln Asn Ile Thr Gly Asn Glu  
 180 185 190  
 Pro His Lys Ile Tyr Leu Phe Lys Asp Ser Thr Ile Leu Ala Lys Ile  
 195 200 205  
 Pro Tyr Gly Lys Ser Phe Gln Lys Gly Glu Met Thr Met Val Phe Tyr  
 210 215 220  
 Asn Glu Cys Tyr Pro Phe His Ala Asn Gly Arg Thr Phe Phe Lys Glu  
 225 230 235 240  
 Met Phe Asn Asp Thr Ile Phe Ser Ile Asp Asn Gln Tyr Gln Pro Val  
 245 250 255  
 Pro Arg Trp Tyr Ile Glu Leu Gly Lys Tyr Lys Ile Ala Glu Asp Ala  
 260 265 270  
 Arg Tyr Thr Leu Thr Asp Pro Arg Lys Ser Val Phe Asp Asn Ala Ala  
 275 280 285  
 Thr Leu Thr Pro Ile Gly Lys Trp Asp Asn Lys Leu Phe Phe Ser Ala  
 290 295 300  
 Arg Ala Asn Lys Gln Asn Tyr Leu Phe Tyr Tyr Asp Leu Lys Glu Lys  
 305 310 315 320  
 Lys Ser Asn Ser Ile Gln Ile Ser Tyr Pro Glu Asn Ser Phe Ala Ile  
 325 330 335  
 Pro Glu Glu His Ser Phe Ile Pro Lys Cys Met Ser Asp Asp Gly Lys  
 340 345 350  
 Tyr Leu Ile Ser Tyr Glu Ile Gln Glu Asn Asp Glu Asn Pro Val Ile  
 355 360 365  
 Ile Leu Ala Glu Lys  
 370

&lt;210&gt; 5764

&lt;211&gt; 965

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5764

Ser Cys Lys Phe Ala Pro Ser Tyr Lys Ala Tyr Ile Ile Asn His Tyr  
 1 5 10 15  
 Lys Gln Lys Val Ile Ala Met Glu Tyr Asn Phe Arg Glu Ile Glu Lys  
 20 25 30  
 Lys Trp Gln Lys Ile Trp Val Asp Asn His Thr Tyr Gln Val Asn Glu  
 35 40 45  
 Asp Ala Ser Lys Gln Lys Phe Tyr Val Leu Asn Met Phe Pro Tyr Pro  
 50 55 60  
 Ser Gly Ala Gly Leu His Val Gly His Pro Leu Gly Tyr Ile Ala Ser  
 65 70 75 80

Asp	Ile	Tyr	Ala	Arg	Tyr	Lys	Arg	Leu	Gln	Gly	Phe	Asn	Val	Leu	Asn
				85					90					95	
Pro	Met	Gly	Tyr	Asp	Ala	Tyr	Gly	Leu	Pro	Ala	Glu	Gln	Tyr	Ala	Ile
			100					105						110	
Gln	Thr	Gly	Gln	His	Pro	Ala	Ile	Thr	Thr	Val	Asn	Asn	Ile	Asn	Arg
		115					120					125			
Tyr	Arg	Glu	Gln	Leu	Asp	Lys	Ile	Gly	Phe	Ser	Phe	Asp	Trp	Asn	Arg
	130					135					140				
Glu	Ile	Arg	Thr	Cys	Asp	Pro	Glu	Tyr	Tyr	His	Trp	Thr	Gln	Trp	Ala
145					150					155					160
Phe	Ile	Lys	Met	Phe	Asn	Ser	Tyr	Tyr	Cys	Asn	Asp	Glu	Lys	Gln	Ala
				165					170					175	
Arg	Pro	Ile	Glu	Glu	Leu	Ile	Glu	Ala	Phe	Ser	Thr	Asn	Gly	Thr	Gln
			180					185						190	
Gly	Met	Asn	Val	Ala	Cys	Gly	Glu	Glu	Met	Asp	Phe	Thr	Ala	Asp	Glu
		195					200					205			
Trp	Asn	Ala	Lys	Ser	Glu	Lys	Glu	Gln	Gln	Glu	Ile	Leu	Met	Asn	Tyr
	210					215					220				
Arg	Ile	Ala	Tyr	Leu	Gly	Asn	Thr	Met	Val	Asn	Trp	Cys	Pro	Ala	Leu
225					230					235					240
Gly	Thr	Val	Leu	Ala	Asn	Asp	Glu	Val	Val	Asp	Gly	Val	Ser	Glu	Arg
			245						250					255	
Gly	Gly	Tyr	Pro	Val	Ile	Gln	Lys	Val	Met	Arg	Gln	Trp	Cys	Leu	Arg
			260					265						270	
Val	Ser	Ala	Tyr	Ala	Gln	Arg	Leu	Leu	Asp	Gly	Leu	Glu	Thr	Val	Glu
		275					280					285			
Trp	Thr	Asp	Ser	Leu	Lys	Glu	Thr	Gln	Arg	Asn	Trp	Ile	Gly	Arg	Ser
	290					295					300				
Glu	Gly	Ala	Glu	Met	Asn	Phe	Lys	Val	Lys	Asp	Ser	Asp	Ile	Glu	Phe
305					310					315					320
Thr	Ile	Phe	Thr	Thr	Arg	Ala	Asp	Thr	Val	Phe	Gly	Val	Thr	Phe	Met
				325					330					335	
Val	Leu	Ala	Pro	Glu	Ser	Glu	Leu	Val	Ala	Lys	Leu	Thr	Thr	Pro	Glu
			340					345						350	
Gln	Lys	Ala	Glu	Val	Asp	Ala	Tyr	Leu	Asp	Arg	Thr	Lys	Lys	Arg	Thr
		355					360					365			
Glu	Arg	Glu	Arg	Ile	Ala	Asp	Arg	Ser	Val	Ser	Gly	Val	Phe	Ser	Gly
	370					375					380				
Ser	Tyr	Ala	Ile	Asn	Pro	Leu	Thr	Asn	Glu	Pro	Ile	Pro	Val	Trp	Ile
385					390					395					400
Ser	Asp	Tyr	Val	Leu	Ala	Gly	Tyr	Gly	Thr	Gly	Ala	Ile	Met	Ala	Val
			405						410					415	
Pro	Ala	His	Asp	Ser	Arg	Asp	Tyr	Ala	Phe	Ala	Lys	His	Phe	Asn	Leu
			420					425					430		
Glu	Ile	Arg	Pro	Leu	Ile	Glu	Gly	Cys	Asp	Val	Ser	Glu	Glu	Ser	Phe
		435					440					445			
Asp	Ala	Lys	Glu	Gly	Ile	Met	Met	Asn	Ser	Pro	Arg	Pro	Gly	Ala	Pro
						455					460				
Glu	Gly	Gly	Leu	Val	Leu	Asn	Gly	Leu	Thr	Val	Lys	Glu	Ala	Ile	Ala
465					470					475					480
Lys	Thr	Lys	Glu	Tyr	Ile	Lys	Ala	Thr	Gly	Leu	Gly	Arg	Val	Lys	Val
			485						490					495	
Asn	Phe	Arg	Leu	Arg	Asp	Ala	Ile	Phe	Ser	Arg	Gln	Arg	Tyr	Trp	Gly
			500					505						510	
Glu	Pro	Phe	Pro	Val	Tyr	Tyr	Lys	Asp	Gly	Met	Pro	Tyr	Met	Ile	Asp
		515					520					525			
Glu	Ser	Cys	Leu	Pro	Leu	Glu	Leu	Pro	Glu	Val	Ala	Lys	Phe	Leu	Pro
	530					535					540				
Thr	Glu	Thr	Gly	Glu	Pro	Pro	Leu	Gly	His	Ala	Thr	Lys	Trp	Ala	Trp

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545		550		555		560
Asp Thr Val Asn Lys Cys Val Thr Asp	Asn Glu Asn Ile Asp Asn Ile					
	565		570		575	
Thr Ile Phe Pro Leu Glu Leu Asn Thr Met Pro Gly Phe Ala Gly Ser						
	580		585		590	
Ser Ala Tyr Tyr Leu Arg Tyr Met Asp Pro Arg Asn His Glu Ala Leu						
	595		600		605	
Val Ser Pro Ala Val Asp Gln Tyr Trp Lys Asn Val Asp Leu Tyr Val						
	610		615		620	
Gly Gly Thr Glu His Ala Thr Gly His Leu Ile Tyr Ser Arg Phe Trp						
	625		630		635	
Asn Lys Phe Leu His Asp Trp Gly Ile Ser Val Ala Glu Glu Pro Phe						
		645		650		655
Gln Lys Leu Val Asn Gln Gly Met Ile Gln Gly Arg Ser Asn Phe Val						
	660		665		670	
Tyr Arg Ile Lys Asp Thr Asn Thr Phe Val Ser Leu Asn Leu Lys Asp						
	675		680		685	
Gln Tyr Glu Val Thr Pro Ile His Val Asp Val Asn Ile Val Ser Asn						
	690		695		700	
Asp Ile Leu Asp Leu Glu Ala Phe Lys Ala Trp Arg Pro Glu Tyr Glu						
	705		710		715	
Thr Ala Glu Phe Ile Leu Glu Asp Gly Lys Tyr Ile Cys Gly Trp Ala						
		725		730		735
Val Glu Lys Met Ser Lys Ser Met Phe Asn Val Val Asn Pro Asp Met						
	740		745		750	
Ile Val Glu Lys Tyr Gly Ala Asp Thr Leu Arg Met Tyr Glu Met Phe						
	755		760		765	
Leu Gly Pro Val Glu Gln Ser Lys Pro Trp Asp Thr Asn Gly Ile Asp						
	770		775		780	
Gly Val His Arg Phe Ile Lys Lys Phe Trp Ser Leu Phe Tyr Asp Arg						
	785		790		795	
Asn Gly Glu Tyr Leu Val Lys Asp Glu Pro Ala Thr Lys Glu Glu Leu						
		805		810		815
Lys Ala Leu His Lys Leu Ile Lys Lys Val Thr Gly Asp Ile Glu Gln						
	820		825		830	
Phe Ser Tyr Asn Thr Ser Val Ser Ala Phe Met Ile Cys Val Asn Glu						
	835		840		845	
Leu Ser Ser Leu Lys Cys Asn Lys Lys Glu Val Leu Glu Gln Leu Ile						
	850		855		860	
Val Val Leu Ala Pro Phe Ala Pro His Val Cys Glu Glu Leu Trp Asp						
	865		870		875	
Thr Leu Gly Asn Ile Thr Ser Val Cys Asp Ala Gln Trp Pro Ala Phe						
		885		890		895
Asn Glu Gln Tyr Leu Val Glu Asp Thr Val Asn Tyr Thr Ile Ser Phe						
	900		905		910	
Asn Gly Lys Ala Arg Phe Asn Met Glu Phe Pro Ala Asp Ala Ala Ser						
	915		920		925	
Asp Ala Ile Gln Ala Thr Val Leu Ala Asp Glu Arg Ser Leu Lys Trp						
	930		935		940	
Thr Glu Gly Lys Thr Pro Lys Lys Val Ile Val Val Pro Lys Lys Ile						
	945		950		955	
Val Asn Ile Val Ile						960
	965					

&lt;210&gt; 5765

&lt;211&gt; 250

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5765

Met Ser Phe Ser Leu Val Thr Val Thr Tyr Asn Ser Ala Gln Thr Leu  
 1 5 10 15  
 Arg Asp Thr Ile Thr Ser Val Leu Ser Gln Thr His Gln Ala Ile Glu  
 20 25 30  
 Tyr Ile Ile Ile Asp Gly Phe Ser Lys Asp Asn Thr Val Ala Ile Ile  
 35 40 45  
 Lys Glu Tyr Glu Pro Leu Phe Asn Gly Arg Leu Lys Trp Ile Ser Glu  
 50 55 60  
 Lys Asp Asn Gly Leu Tyr Asp Ala Met Asn Lys Gly Phe Gln Met Ala  
 65 70 75 80  
 Thr Gly Asp Val Ile Gly Ile Ile Asn Ser Asp Asp Leu Ile Ser Asp  
 85 90 95  
 Pro Asn Ala Ile Glu Lys Val Ile Lys Cys Phe Glu Ser Asp Thr Ser  
 100 105 110  
 Ile Asp Ala Val Tyr Ala Asp Leu Tyr Tyr Val Ala Gln Asn Asp Ile  
 115 120 125  
 Ser Lys Ile Val Arg Tyr Trp Lys Ser Gly Gly Gln Arg Pro Phe Cys  
 130 135 140  
 Lys Gly Trp His Pro Ala His Pro Thr Phe Tyr Val Lys Lys Glu Val  
 145 150 155 160  
 Tyr Gln Arg Tyr Gly Leu Phe Asp Leu Asp Phe Lys Phe Ala Ala Asp  
 165 170 175  
 Phe Glu Leu Met Leu Arg Leu Ile Asp Lys Glu His Ile Lys Leu Tyr  
 180 185 190  
 Tyr Leu Pro Glu Pro Leu Val Arg Met Arg Leu Gly Gly Thr Thr Ser  
 195 200 205  
 Lys Asn Leu Ser Asn Ile Arg Lys Gly Asn Leu Glu Cys Ile Asn Ala  
 210 215 220  
 Phe Lys Lys Asn Gly Ile Lys Val Ser Met Leu Tyr Pro Leu Tyr Arg  
 225 230 235 240  
 Leu Leu Pro Lys Ile Arg Gln Tyr Phe Gln  
 245 250

&lt;210&gt; 5766

&lt;211&gt; 211

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5766

Asn Lys Arg Phe Glu Phe Met Asn Thr Leu Leu Met Ser Leu Ile Phe  
 1 5 10 15  
 Thr Thr Met Thr Tyr Glu Met Pro Lys Leu Pro Tyr Ala Asn Asn Ala  
 20 25 30  
 Leu Glu Pro Val Ile Ser Gln Gln Thr Ile Asp Tyr His Tyr Gly Lys  
 35 40 45  
 His Leu Gln Thr Tyr Val Asn Asn Leu Asn Ser Leu Val Pro Gly Thr  
 50 55 60  
 Glu Tyr Glu Gly Lys Thr Val Glu Ala Ile Val Ala Ser Ala Pro Asp  
 65 70 75 80  
 Gly Ala Ile Phe Asn Asn Ala Gly Gln Val Leu Asn His Thr Leu Tyr  
 85 90 95  
 Phe Leu Gln Phe Ala Pro Lys Pro Ala Lys Asn Glu Pro Ala Gly Lys  
 100 105 110  
 Leu Gly Glu Ala Ile Lys Arg Asp Phe Gly Ser Phe Glu Asn Phe Lys  
 115 120 125  
 Lys Glu Phe Asn Ala Ala Ser Val Gly Leu Phe Gly Ser Gly Trp Ala  
 130 135 140  
 Trp Leu Ser Val Asp Lys Asp Gly Lys Leu His Ile Thr Lys Glu Pro

145                      150                      155                      160  
 Asn Gly Ser Asn Pro Val Arg Ala Gly Leu Lys Pro Leu Leu Gly Phe  
                                  165                      170                      175  
 Asp Val Trp Glu His Ala Tyr Tyr Leu Asp Tyr Gln Asn Arg Arg Ala  
                                  180                      185                      190  
 Asp His Val Asn Lys Leu Trp Glu Ile Ile Asp Trp Asp Val Val Glu  
                                  195                      200                      205  
 Lys Arg Leu  
                                  210

<210> 5767  
 <211> 126  
 <212> PRT  
 <213> B.fragilis

<400> 5767  
 Arg Phe Glu Ser Gly Asp Gly Leu Asp Thr Cys Gln Glu Lys Lys Ser  
 1                      5                      10                      15  
 Val Thr Leu Phe Phe Phe Leu Gln Leu Ala Gln Gln Ile Pro Ile Val  
                                  20                      25                      30  
 Ile Phe Lys Phe Lys Arg Gln Ile Ile Arg Val Ala Val Val Phe Glu  
                                  35                      40                      45  
 Asn Arg Val Glu Val Arg Ala Val Val Asn Ala Phe Val Ser Asn Ala  
                                  50                      55                      60  
 Gly Asn Ala Glu Ile Met Arg Asn Ile Gly Tyr Cys Ile Met Gln Leu  
 65                      70                      75                      80  
 Phe Gly Lys Gly Val Gly Gly Ile Tyr Gln Lys Ala Asn Val Val Leu  
                                  85                      90                      95  
 Ala Thr Glu Ser Phe Gln Gly Ser Pro Gly His Gly Ala Ala Gln Ala  
                                  100                      105                      110  
 Tyr Ala Met Met Gln Val Asp Ile Leu Phe Val Thr Phe Gly  
                                  115                      120                      125

<210> 5768  
 <211> 283  
 <212> PRT  
 <213> B.fragilis

<400> 5768  
 Ser Val Arg Ser Val Thr Leu Ser Leu Pro Val Ser Asn Phe Arg Leu  
 1                      5                      10                      15  
 Leu Thr Phe Asn Asn Leu Ser Ser Ile Met Lys Ala Val Ile Leu Ala  
                                  20                      25                      30  
 Gly Gly Phe Gly Thr Arg Leu Ser Glu Ala Thr Asn Leu Ile Pro Lys  
                                  35                      40                      45  
 Pro Met Val Glu Ile Gly Gly Lys Pro Ile Leu Trp His Ile Met Lys  
                                  50                      55                      60  
 Thr Tyr Ser His Tyr Gly Ile Asn Asp Phe Val Ile Cys Cys Gly Tyr  
 65                      70                      75                      80  
 Lys Gln Tyr Ile Ile Lys Glu Tyr Phe Ala Asn Tyr Phe Arg His Asn  
                                  85                      90                      95  
 Ser Asp Met Thr Val Asp Leu Ser Asn Asn Thr Thr Thr Ile Leu Asp  
                                  100                      105                      110  
 Asn His Ser Glu Asn Trp Lys Val Thr Met Val Asp Thr Gly Leu Asn  
                                  115                      120                      125  
 Thr Gln Thr Gly Gly Arg Ile Arg Arg Val Gln Lys Tyr Leu Gly Asn  
                                  130                      135                      140  
 Glu Arg Phe Leu Leu Thr Tyr Gly Asp Gly Val Thr Asp Leu Asn Ile  
 145                      150                      155                      160

Gly	Asp	Thr	Leu	Lys	Ala	His	Glu	Ser	Ser	Gly	Cys	Leu	Leu	Ser	Leu
				165					170					175	
Thr	Ala	Tyr	Lys	Pro	Gly	Gly	Lys	Phe	Gly	Ala	Leu	Gln	Leu	Asp	Leu
			180					185						190	
Asp	Thr	Asp	Lys	Val	Leu	Ser	Phe	Gln	Glu	Lys	Pro	Asp	Gly	Asp	Arg
		195					200					205			
Asn	Trp	Ile	Asn	Ala	Gly	Tyr	Phe	Val	Cys	Glu	Pro	Glu	Val	Phe	Asp
	210					215					220				
Tyr	Ile	Pro	Glu	Gly	Asp	Ser	Thr	Ile	Phe	Glu	Arg	Gln	Pro	Leu	Glu
225					230					235					240
Ser	Ile	Ala	Lys	Ala	Gly	Arg	Met	His	Ala	Phe	Arg	His	Thr	Gly	Phe
				245					250					255	
Trp	Lys	Pro	Met	Asp	Thr	Leu	Arg	Asp	Asn	Thr	Glu	Leu	Asn	Glu	Met
			260					265					270		
Trp	Asp	Gln	Gly	Val	Ala	Pro	Trp	Lys	Val	Trp					
		275					280								

&lt;210&gt; 5769

&lt;211&gt; 374

&lt;212&gt; PRT

&lt;213&gt; B.fragilis

&lt;400&gt; 5769

Asn	Val	Gly	Ser	Gly	Ser	Arg	Ser	Leu	Glu	Ser	Val	Val	Ser	Arg	Met
1				5					10					15	
Gly	Ile	Asp	Ile	Phe	Asp	Asn	Phe	Tyr	Arg	Gly	Lys	Arg	Val	Leu	Val
			20					25					30		
Thr	Gly	His	Thr	Gly	Phe	Lys	Gly	Ser	Trp	Leu	Ser	Ile	Trp	Leu	His
		35					40					45			
Glu	Leu	Gly	Ala	Glu	Val	Ile	Gly	Val	Ala	Gln	Asp	Pro	Phe	Thr	Ala
	50					55				60					
Arg	Asp	Asn	Phe	Val	Leu	Ser	Gly	Ile	Gly	Glu	Lys	Ile	Lys	Ala	Asp
65				70					75					80	
Leu	Arg	Ala	Asp	Ile	Arg	Asp	Gly	Glu	Arg	Ile	Lys	Ala	Ile	Phe	Gln
			85					90						95	
Glu	Tyr	Gln	Pro	Glu	Ile	Val	Phe	His	Leu	Ala	Ala	Gln	Pro	Leu	Val
			100					105					110		
Arg	Leu	Ser	Tyr	Asp	Ile	Pro	Val	Glu	Thr	Tyr	Glu	Thr	Asn	Val	Met
		115					120					125			
Gly	Thr	Ile	His	Val	Leu	Glu	Ala	Val	Arg	Ser	Thr	Asp	Ser	Val	Lys
	130					135					140				
Val	Gly	Val	Met	Ile	Thr	Thr	Asp	Lys	Cys	Tyr	Glu	Asn	Lys	Glu	Gln
145				150					155					160	
Ile	Trp	Gly	Tyr	Arg	Glu	Asn	Glu	Pro	Met	Gly	Gly	Tyr	Asp	Pro	Tyr
				165				170						175	
Ser	Ser	Ser	Lys	Gly	Ala	Ala	Glu	Ile	Ala	Ile	Ala	Ser	Trp	Arg	Arg
			180				185						190		
Ser	Phe	Phe	Asn	Pro	Glu	Gln	Tyr	Asp	Lys	His	Gly	Lys	Ser	Ile	Ala
	195						200					205			
Ser	Val	Arg	Ala	Gly	Asn	Val	Ile	Gly	Gly	Gly	Asp	Trp	Ala	Leu	Asp
	210				215						220				
Arg	Ile	Ile	Pro	Asp	Cys	Ile	Lys	Ala	Leu	Glu	Ser	Gly	Ala	Ala	Ile
225					230					235					240
Asp	Ile	Arg	Ser	Pro	Lys	Ala	Ile	Arg	Pro	Trp	Gln	His	Val	Leu	Glu
				245				250						255	
Pro	Leu	Ser	Gly	Tyr	Met	Leu	Leu	Ala	Gln	Lys	Met	Trp	Asp	Ala	Pro
			260				265						270		
Thr	Asp	Tyr	Cys	Glu	Gly	Trp	Asn	Phe	Gly	Pro	His	Ser	Glu	Ser	Ile
		275					280					285			